13 - MEP

INDEX OF DRAWINGS

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DESIGNED BY:
Hatch Mott MacDonald
400 BLUE HILL DRIVE
SUITE 100, NORTH LOBBLY
WESTWOOD, MA. 02090

STATE OF CONNECTICUT · DAVID G. NEWMAN · No. 29278 · LICENSED · PROFESSIONAL ENGINEER
David G. Newman
I Sign and Certify
Vol. 1: Subset 13
2014.02.27
10:49:07-05'00'

DESIGNED BY:
Hatch Mott MacDonald
400 BLUE HILL DRIVE
SUITE 100, NORTH LOBBLY
WESTWOOD, MA. 02090

STATE OF CONNECTICUT · NIZOM S. GHANTOUS · LICENSED · PROFESSIONAL ENGINEER
Nizom S. Ghantous
I Sign and Certify
Vol. 1: Subset 13
2014.02.26
17:16:53-05'00'

DESIGNED BY:
Baker
MICHAEL BAKER ENGINEERING, INC.
500 ENTERPRISE DRIVE
SUITE 2B
ROCKY HILL, CT 06067

STATE OF CONNECTICUT · EDWARD R. WHITBREAD · LICENSED · PROFESSIONAL ENGINEER
Ray Whitbread
2014.02.27
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THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 2/26/2014

DESIGNER/DRAFTER: **S. BIRKOK**

CHECKED BY: **D. NEWMAN**

NOT TO SCALE

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296_007__04_MEP__001.dgn

SIGNATURE/BLOCK:
Hatch Mott MacDonald
Suite 100, North Lobby
400 Blue Hill Drive
Westwood, MA 02090

PROJECT TITLE: **NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR**

TOWN: **BERLIN**

DRAWING TITLE: **MEP INDEX OF DRAWINGS**

PROJECT NO. **170-3155**

DRAWING NO. **MEPI-001**

SHEET NO. **01.13.001**

GENERAL NOTES

1. THE HEATING, VENTILATING AND AIR CONDITIONING (HVAC) CONTRACTOR SHALL VISIT THE SITE TO DETERMINE ALL PRE-EXISTING CONDITIONS AND WORK NECESSARY PRIOR TO SUBMISSION OF BID PRICE. EXTRA PAYMENT OR COMPENSATION FOR WORK REQUIRED DUE TO EXISTING CONDITIONS THAT WOULD HAVE BEEN OBSERVED DURING THE SITE EXAMINATION WILL NOT BE MADE.
2. THE HVAC CONTRACTOR SHALL BE FAMILIAR WITH ALL CONTRACT DOCUMENTS FOR ALL TRADES AND COORDINATE WITH OTHER CONTRACTORS.
3. DRAWINGS ARE DIAGRAMMATIC ONLY, FINAL ROUTING OF DUCTWORK, PIPING AND EQUIPMENT LOCATIONS SHALL BE DETERMINED IN THE FIELD. ADDITIONAL OFFSETS, ELBOWS, ETC., SHALL BE DEMOLISHED WITHOUT ADDITIONAL COST TO THE OWNER.
4. DIMENSIONS SHOWN ON PLANS ARE HORIZONTAL, DIMENSIONS SHOWN IN ELEVATION ARE VERTICAL EXCEPT THAT, IN WAY OF STRUCTURAL STEEL, DIMENSIONS ARE MEASURED PERPENDICULAR TO FLANGE.
5. ALL DUCTWORK SHALL BE CONSTRUCTED AND INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF SMACNA STANDARDS.
6. MINIMUM SIZE OF ALL HVAC PIPING SHALL BE 3/4" UNLESS OTHERWISE NOTED.
7. THE HVAC CONTRACTOR SHALL COORDINATE ALL ELECTRICAL AND PLUMBING REQUIREMENTS WITH THE ELECTRICAL AND PLUMBING CONTRACTORS.
8. THE HVAC CONTRACTOR SHALL FIELD MEASURE EXACT SIZES AND VERIFY ALL OPENINGS FOR SHAFTS AND LOUVERS PRIOR TO SUBMISSION OF SHOP DRAWINGS AND INSTALLATION.
9. ALL HVAC WORK SHALL BE IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL CODES.
10. ALL HVAC EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
11. MANUFACTURERS' MODEL NUMBERS ARE SPECIFIED SOLELY TO ESTABLISH STANDARDS OF QUALITY FOR PERFORMANCE AND MATERIAL.
12. PROVIDE ACCESS PANELS FOR EQUIPMENT THAT REQUIRES PERIODIC SERVICE.
13. RUN DUCTS AND PIPING CONCEALED, UNLESS SPECIFIED OTHERWISE AND CLEAR OF CEILING INSERTS.
14. FIRE DAMPERS AND ACCESS PANELS SHALL BE INSTALLED AT ALL 2-HOUR RATED PARTITIONS, FLOOR PENETRATIONS AND WHERE REQUIRED BY NFPA 90A. REFER TO ARCHITECTURAL DRAWINGS FOR PARTITION LOCATIONS.
15. SHUTOFF VALVES SHALL BE INSTALLED IN THE SUPPLY AND RETURN PIPING TO ALL EQUIPMENT TO ALLOW FOR SERVICING. UNIONS OR FLANGES SHALL BE ARRANGED SUCH THAT EQUIPMENT CAN BE SERVICED WITHOUT CUTTING, AND WITH MINIMAL DISRUPTION OF PIPING SERVING THE EQUIPMENT.
16. INSULATE PIPING AS SPECIFIED; PERFORM TESTS SPECIFIED BEFORE INSULATING.
17. PROVIDE CLAMPS, OFFSETS, EXPANSION JOINTS, ANCHORS AND GUIDES AS NECESSARY TO PREVENT STRESS ON PIPING.
18. PROVIDE VENTS AT HIGH POINTS IN PIPING SYSTEMS AND DRAIN VALVES AT LOW POINTS.
19. PROVIDE GAUGE FITTINGS AND THERMOMETER WELLS AT HOT WATER SUPPLY AND RETURN BRANCHES AND AT INLETS AND OUTLETS.
20. PITCH PIPING 1 INCH IN 20 FEET IN DIRECTION OF FLOW.
21. PROVIDE BALANCING VALVES AT SYSTEM LOOP RETURNS, PROVIDE SHUT-OFF VALVES AT SYSTEM LOOP SUPPLIES.
22. THE HVAC CONTRACTOR SHALL FURNISH TO THE GENERAL CONTRACTOR ALL INFORMATION REQUIRED FOR SETTING OF WALL, AND PARTITION OPENINGS FOR HVAC WORK. THIS INFORMATION SHALL BE FURNISHED IN A TIMELY MANNER SUCH THAT CONSTRUCTION SCHEDULE IS NOT JEOPARDIZED.
23. HVAC CONTRACTOR SHALL VERIFY ALL THE EXISTING CONDITIONS SHOWN ON THE DRAWINGS INCLUDING DUCTWORK AND PIPING THAT ARE INSTALLED IN ENCLOSED CHASE.
24. ALL WORK SHALL BE COORDINATED WITH OWNER'S REPRESENTATIVE, AND THE OTHER TRADES.
25. WHERE DRAWINGS CONFLICT OR ARE UNCLEAR, ADVISE PROJECT ENGINEER IN WRITING BEFORE AWARD OF CONTRACT.
26. THE HVAC CONTRACTOR SHALL INVESTIGATE AVAILABLE SPACE FOR ALL EQUIPMENT IN CEILING BEFORE SUBMISSION OF SHOP DRAWINGS.
27. TEMPORARY DUCTWORK AND/OR PIPING REQUIRED FOR PHASING OR SUPPORTING EXISTING SERVICES OR OCCUPANCY FUNCTIONS SHALL BE PROVIDED NO ADDITIONAL COST TO THE OWNER.
28. COORDINATE ALL MOTOR, STARTER AND, DISCONNECT REQUIREMENTS WITH ELECTRICAL SUBCONTRACTOR FOR ALL EQUIPMENT REQUIRING SAME.
29. ALL EXPOSED EQUIPMENT (GRILLES, UNIT HEATER, ETC.) SHALL HAVE COLORS SELECTED BY THE PROJECT ENGINEER UNLESS OTHERWISE NOTED.
30. ALL HVAC EQUIPMENT SHALL BE INSTALLED IN SUCH A WAY SO THAT LIGHTS DO NOT BLOCK ACCESS TO UNITS AND RELATED ACCESSORIES.

GENERAL ABBREVIATIONS

A	COMPRESSED AIR
AC	AIR CONDITIONING UNIT
ACCU	AIR COOLED CONDENSING UNIT
ACD	AUTOMATIC CONTROL DAMPER
AD	ACCESS DOOR
AHU	AIR HANDLING UNIT
AFF	ABOVE FINISHED FLOOR
AFMD	AIR FLOW MEASURING DEVICE
AP	ACCESS PANEL
APD	AIR PRESSURE DROP (INCHES OF WATER)
AS	AIR SEPARATOR
ATC	AUTOMATIC TEMPERATURE CONTROL
AV	AIR VENT (AUTOMATIC)
B	BOILER
BDD	BACKDRAFT DAMPER
BHP	BRAKE HORSE POWER
BTU/H	BRITISH THERMAL UNITS PER HOUR
C	CONTRACTOR
CACU	COMPUTER ROOM A.C. UNIT
CC	COOLING COIL
CF	CHEMICAL FEED
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CH	CHILLER
CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
CM	CONSTRUCTION MANAGER
CO	CLEAN OUT
COND	CONDENSATE
CP	CONDENSATE PUMP
CT	COOLING TOWER
CTR	COOLING TOWER RETURN
CTS	COOLING TOWER SUPPLY
CU	CONDENSING UNIT
CUH	CABINET UNIT HEATER
CW	CITY WATER
D	DRAIN
DBT	DRY BULB TEMP. DEGREES F.
DIA	DIAMETER
DOV	DRAIN OFF VALVE
DTR	DUAL TEMPERATURE WATER RETURN
DTS	DUAL TEMPERATURE WATER SUPPLY
DX	DIRECT EXPANSION
E	EXISTING (BEFORE SYMBOL)
EA	EXHAUST AIR DEVICE
EHC	ELECTRIC HEATING COIL
EAT	ENTERING AIR TEMPERATURE
EBB	ELECTRIC BASEBOARD
EC	ELECTRICAL CONTRACTOR
EF	EXHAUST FAN
ESP	EXTERNAL STATIC PRESSURE
ET	EXPANSION TANK
ETBR	EXISTING TO BE REMOVED
ETR	EXISTING TO REMAIN
EUH	ELECTRIC UNIT HEATER
EWT	ENTERING WATER TEMPERATURE
EXP	EXPANSION
F	FILL
FA	FRESH AIR
FCU	FAN COIL UNIT
FD	FIRE DAMPER
FF	FINAL FILTER
FLA	FULL LOAD AMPS
FOR	FUEL OIL RETURN
FOS	FUEL OIL SUPPLY
FPB	FAN POWERED TERMINAL BOX
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FS	FLOW SWITCH
FSD	FIRE & SMOKE DAMPER
G	NATURAL GAS
GA	GAUGE
GAL	GALLONS
GC	GENERAL CONTRACTOR
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GR	GLYCOL RETURN
GS	GLYCOL SUPPLY
GUH	GAS UNIT HEATER
H	HUMIDIFIER
HG	HOT GAS
HP	HORSEPOWER
HPR	HIGH PRESSURE CONDENSATE RETURN
HPS	HIGH PRESSURE STEAM SUPPLY (60# AND UP)
HTHW	HIGH TEMPERATURE HOT WATER
HV	HEATING & VENTILATING UNIT
HVAC	HEATING, VENTILATING & AIR CONDITIONING
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY
HX	HEAT EXCHANGER
ID	INSIDE DIAMETER
IU	INDUCTION UNIT
KW	KILOWATT
KWH	KILOWATT HOUR
LAT	LEAVING AIR TEMPERATURE
LBS/HR	POUNDS PER HOUR
LPR	LOW PRESSURE CONDENSATE RETURN
LPS	LOW PRESSURE STEAM SUPPLY (2# TO 15#)
LRA	LOCKED ROTOR AMPS
LTHW	LOW TEMPERATURE HOT WATER
LWT	LEAVING WATER TEMPERATURE
MAX	MAXIMUM
MBH	1,000 BTU PER HOUR
MCF	1,000 CUBIC FEET
MD	MOTORIZED DAMPER
MFG'R	MANUFACTURER
MIN	MINIMUM
MPR	MEDIUM PRESSURE CONDENSATE RETURN
MPS	MEDIUM PRESSURE STEAM SUPPLY (16# TO 59#)
MTD	MOUNTED
MTHW	MEDIUM TEMPERATURE HOT WATER
MUA	MAKE-UP AIR
MV	AIR VENT (MANUAL)
NA	NOT APPLICABLE
NC	NORMALLY CLOSED
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
NOM	NOMINAL
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OBD	OPPOSED BLADE DAMPER
OD	OUTSIDE DIAMETER
P	PUMP
PC	PLUMBING CONTRACTOR
PCHWR	PROCESSED CHILLED WATER RETURN
PCHWS	PROCESSED CHILLED WATER SUPPLY
PD	PRESSURE DROP (FEET OF WATER)
PF	PRE-FILTER
PH	PRE-HEAT COIL
PRV	PRESSURE REDUCING VALVE
PS	PRESSURE SWITCH
PSIA	POUNDS PER SQUARE INCH ABSOLUTE
PSIG	POUNDS PER SQUARE INCH GAGE
R	RETURN AIR DEVICE
RA	RETURN AIR
RAF	RETURN AIR FAN
RC	REHEAT COIL
RH	RELATIVE HUMIDITY
RL	REFRIGERANT LIQUID
RP	RADIANT PANEL
RPM	REVOLUTIONS PER MINUTE
RS	REFRIGERANT SUCTION
RTU	ROOF TOP UNIT
S	SUPPLY AIR DEVICE
SA	SUPPLY AIR
SAU	SOUND ATTENUATING UNIT
SD	SMOKE DAMPER
SF	SUPPLY AIR FAN
SG	SPECIFIC GRAVITY
SP	STATIC PRESSURE (INCHES OF WATER)
SPC	STATIC PRESSURE CONTROLLER
T	TRANSFER AIR DEVICE
TAC	THRU WALL AIR CONDITIONER
TB	TERMINAL BOX
TEMP	TEMPERATURE
TSP	TOTAL STATIC PRESSURE
TW	THERMOMETER WELL
TYP	TYPICAL
UC	UNDER CUT
UH	UNIT HEATER
UV	UNIT VENTILATOR
V	VOLTS
VAV	VARIABLE AIR VOLUME TERMINAL BOX
VD	VOLUME DAMPER
VFD	VARIABLE FREQUENCY DRIVE
VP	VACUUM PUMP
VTR	VENTED THROUGH ROOF
W	WATTS
WAC	WINDOW AIR CONDITIONER
WBT	WET BULB TEMP. DEGREES F.
WH	WALL HEATER
WMS	WIRE MESH SCREEN
WPD	WATER PRESSURE DROP (FEET)

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DESIGNER/DRAFTER: S. BIRKOK
CHECKED BY: D. NEWMAN
NOT TO SCALE

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296_007_-04_FME_-001.dgn

SIGNATURE/BLOCK:

STATE OF CONNECTICUT · DAVID G. NEWMAN · No. 29878 · LICENSED PROFESSIONAL ENGINEER

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PROJECT TITLE:
NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR

TOWN: BERLIN

DRAWING TITLE:
MECHANICAL GENERAL NOTES AND ABBREV.

PROJECT NO. 170-3155
DRAWING NO. FME-001
SHEET NO. 01.13.002

SHEETMETAL SYMBOLS

DOUBLE LINE / SINGLE LINE

- SUPPLY AIR DUCT TURN 90° UP
- SUPPLY AIR DUCT TURN 90° DOWN
- RET./EXH. AIR DUCT TURN 90° UP
- RET./EXH. AIR DUCT TURN 90° DOWN
- ROUND DUCT TURN 90° UP
- ROUND DUCT TURN 90° DOWN
- SUPPLY AIR DUCT UP & PENETRATING FLOOR ABOVE
- RETURN/EXH. AIR DUCT UP & PENETRATING FLOOR ABOVE
- ROUND DUCT UP & PENETRATING FLOOR ABOVE

DOUBLE LINE / SINGLE LINE

- VD — VOLUME DAMPER
- FSD — FIRE SMOKE DAMPER
- BDD — BACKDRAFT DAMPER
- FD — FIRE DAMPER
- SD — SMOKE DAMPER
- ACD — AUTOMATIC CONTROL DAMPER (ELECTRIC OR PNEUMATIC)
- M — MOTORIZED DAMPER
- H — DUCT MOUNTED HUMIDIFIER

DOUBLE LINE / SINGLE LINE

- FLEXIBLE DUCT
- FLEXIBLE CONNECTION
- BREAK &/OR CONTINUATION (RECT.)
- BREAK &/OR CONTINUATION (ROUND)
- EXISTING DUCTWORK AND EQUIPMENT TO REMAIN
- EXISTING DUCTWORK AND/OR EQUIP. TO BE REMOVED
- CONCENTRIC REDUCER
- ECCENTRIC REDUCER
- RECTANGULAR TO ROUND TRANSITION

DOUBLE LINE / SINGLE LINE

- DUCT W/ 1" ACOUSTICAL LINER
- UP / DN — (RECT.)
- VERTICAL OFFSET UP OR DOWN (ARROW INDICATES DIRECTION OF FLOW)
- UP / DN — (ROUND)
- DUCT REMOVED AND HOLE CAPPED/BLANKED OFF
- HORIZONTAL OFFSET

DOUBLE LINE / SINGLE LINE

- SMOOTH RADIUS ELBOW
- ELBOW W/ TURNING VANES
- TRUNK TEE
- SQUARE BULLHEAD TEE W/TURNING VANES

DOUBLE LINE / SINGLE LINE

- 90° BRANCH TAKE-OFF
- 90° BRANCH TAKE-OFF (RECT. TO ROUND)
- 90° BRANCH TAKE-OFF (BELLMOUTH)
- 45° BRANCH TAKE-OFF (RECTANGULAR)
- 45° BRANCH TAKE-OFF (ROUND)

SHEETMETAL SYMBOLS CONT.

DOUBLE LINE / SINGLE LINE

- LINEAR SIDEWALL DIFFUSER (W/SHEET METAL CONNECTION PLENUM W/1" LINING & BRANCH FOR EVERY 4' OF LINEAR.)
- LINEAR SIDEWALL DIFFUSER (W/SHEET METAL CONNECTION PLENUM W/1" LINING & BRANCH FOR EVERY 4' OF LINEAR.) — BOOT BY LD MFG'R
- SIDEWALL DUCT MTD. REG./GRILLE

PIPING SYMBOLS

- SUPPLY PIPING (TYP.)
- RETURN PIPING (TYP.)
- PUMPED CONDENSATE PIPING
- DRAIN PIPING
- BALL VALVE W/HOSE BIBB END, BRONZE CAP AND CHAIN
- GLOBE VALVE
- BALANCING VALVE
- ANGLE GLOBE VALVE
- BALL VALVE
- PRESSURE REDUCING VALVE
- HORIZONTAL CHECK VALVE
- 2-WAY CONTROL VALVE
- 3-WAY CONTROL VALVE
- BUTTERFLY VALVE
- QUICK CLOSING VALVE W/ FUSIBLE LINK
- SELF CONTAINED RADIATION VALVE
- "Y" STRAINER
- "Y" STRAINER W/ BLOW DOWN
- GATE VALVE
- GATE VALVE W/ HOSE BIBB END, BRONZE CAP & CHAIN
- PRESSURE REDUCING VALVE
- EXPANSION JOINT
- PRESSURE RELIEF VALVE
- DIRECTION OF FLOW
- PIPE DROP
- PIPE RISE/DROP
- PIPE RISE/DROP PENETRATION
- BRANCH CONNECTION
- BOTTOM CONNECTION 45° OR 90°
- CAPPED PIPE
- GRAPHIC BREAK &/OR CONTINUATION
- UNION
- FLEX PIPE CONNECTOR
- AV — AIR VENT (AUTOMATIC)
- MV — AIR VENT (MANUAL)
- FS — FLOW SWITCH
- PS — PRESSURE SWITCH

PIPING SYMBOLS CONT.

- THERMOMETER
- TW — THERMOMETER WELL
- PT — PRESS./ TEMP. TAP (PETE'S PLUG)
- PRESSURE GAUGE
- PRESSURE GAUGE W/ COIL SYPHON
- PRESSURE GAUGE W/ DAMPENER
- IN LINE PUMP
- BASKET STRAINER
- B — BUCKET TRAP
- THERMOSTATIC TRAP
- FLOAT & THERMOSTATIC TRAP & VALVE TRAIN
- DIRT LEG
- UP/DN — PITCH UP/DOWN IN DIRECTION OF ARROW
- PIPE GUIDE
- PIPE ANCHOR
- FLANGES
- RPBP — REDUCED PRESSURE BACKFLOW PREVENTER
- CLEAN-OUT FOR CONDENSATE DRAIN

GENERAL SYMBOLS

- 1 — REVISION NUMBER
- T — THERMOSTAT
- H — HUMIDISTAT (MOUNT 54" AFF)
- S — SPEED SWITCH
- SD — SMOKE DETECTOR
- RS — REMOTE SENSOR
- CONNECT TO EXISTING
- EXTENT OF REMOVAL
- DUCT SMOKE
- SUPPLY AIR ARROW
- RETURN/EXHAUST AIR ARROW
- UC — UNDERCUT DOOR
- DL — DOOR LOUVER

- "-" / XXX — DENOTES EQUIPMENT NOT REQUIRING ELECTRICAL INPUT
- UNIT # — DENOTES EQUIPMENT REQUIRING ELECTRICAL INPUT
- # — DENOTES EQUIPMENT REQUIRING ELECTRICAL INPUT
- DENOTES HVAC DUCTWORK RISER
- # — DENOTES CONTROL DEVICES

AIR DISTRIBUTION DEVICE

- (2) X / XXX — (QUANTITY) TYPE / FLOW RATE (CFM)

- VAV BOX
- 1 — DESIGNATION NUMBER

SIZE	VAV-6
MAX. CFM	250
MIN. CFM	150
GPM	1.0

SIZE / MAXIMUM CFM / MINIMUM CFM / FLOW RATE

NOTE: NOT ALL SYMBOLS MAY BE APPLICABLE TO THIS PROJECT.

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: **S. BIRKOK**
CHECKED BY: **D. NEWMAN**
NOT TO SCALE

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ..\FA_CGR_CPS_0170-2296_007_.04_FME_.002.dgn

SIGNATURE/ BLOCK:

STATE OF CONNECTICUT — DONALD S. NEWMAN — No. 29278 — LICENSED PROFESSIONAL ENGINEER

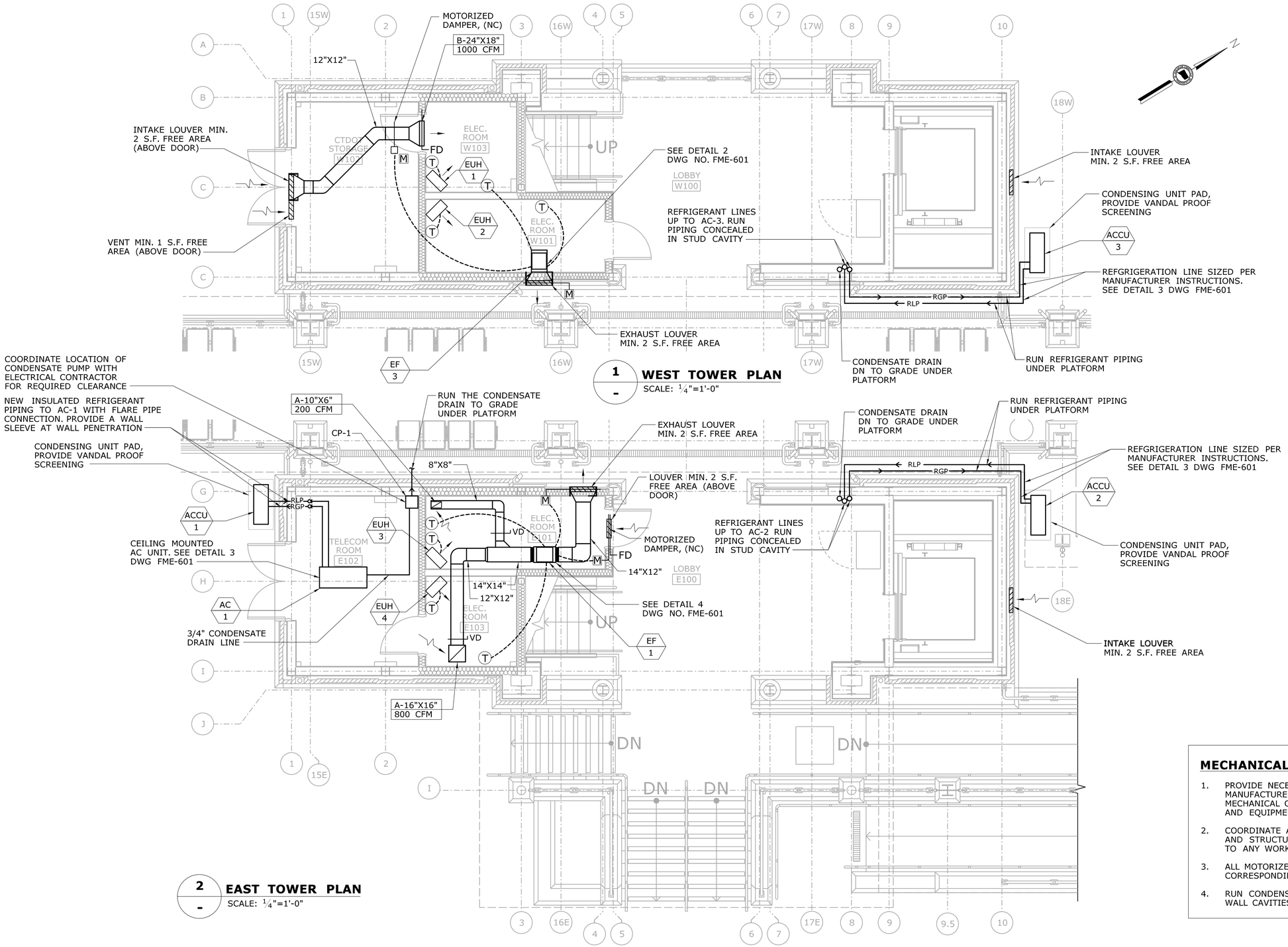
Hatch Mott MacDonald
Suite 100, North Lobby
400 Blue Hill Drive
Westwood, MA 02090

PROJECT TITLE:
NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR

TOWN: **BERLIN**

DRAWING TITLE: **MECHANICAL LEGEND**

PROJECT NO. **170-3155**
DRAWING NO. **FME-002**
SHEET NO. **01.13.003**



MECHANICAL NOTES:

1. PROVIDE NECESSARY CLEARANCES REQUIRED BY MANUFACTURERS, AND STATE ELECTRICAL AND MECHANICAL CODES FOR MECHANICAL COMPONENTS AND EQUIPMENTS.
2. COORDINATE ALL WORK WITH PLUMBING, ELECTRICAL AND STRUCTURAL DRAWINGS AND CONTRACTORS PRIOR TO ANY WORK.
3. ALL MOTORIZED DAMPERS ARE INTERLOCKED WITH CORRESPONDING EXHAUST FANS.
4. RUN CONDENSATE AND REFRIGERANT PIPING WITHIN WALL CAVITIES.

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: **S. BIRKOK**
CHECKED BY: **D. NEWMAN**
SCALE: 1/4" = 1'-0"

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296_007_04_FME_101.dgn

SIGNATURE/ BLOCK:

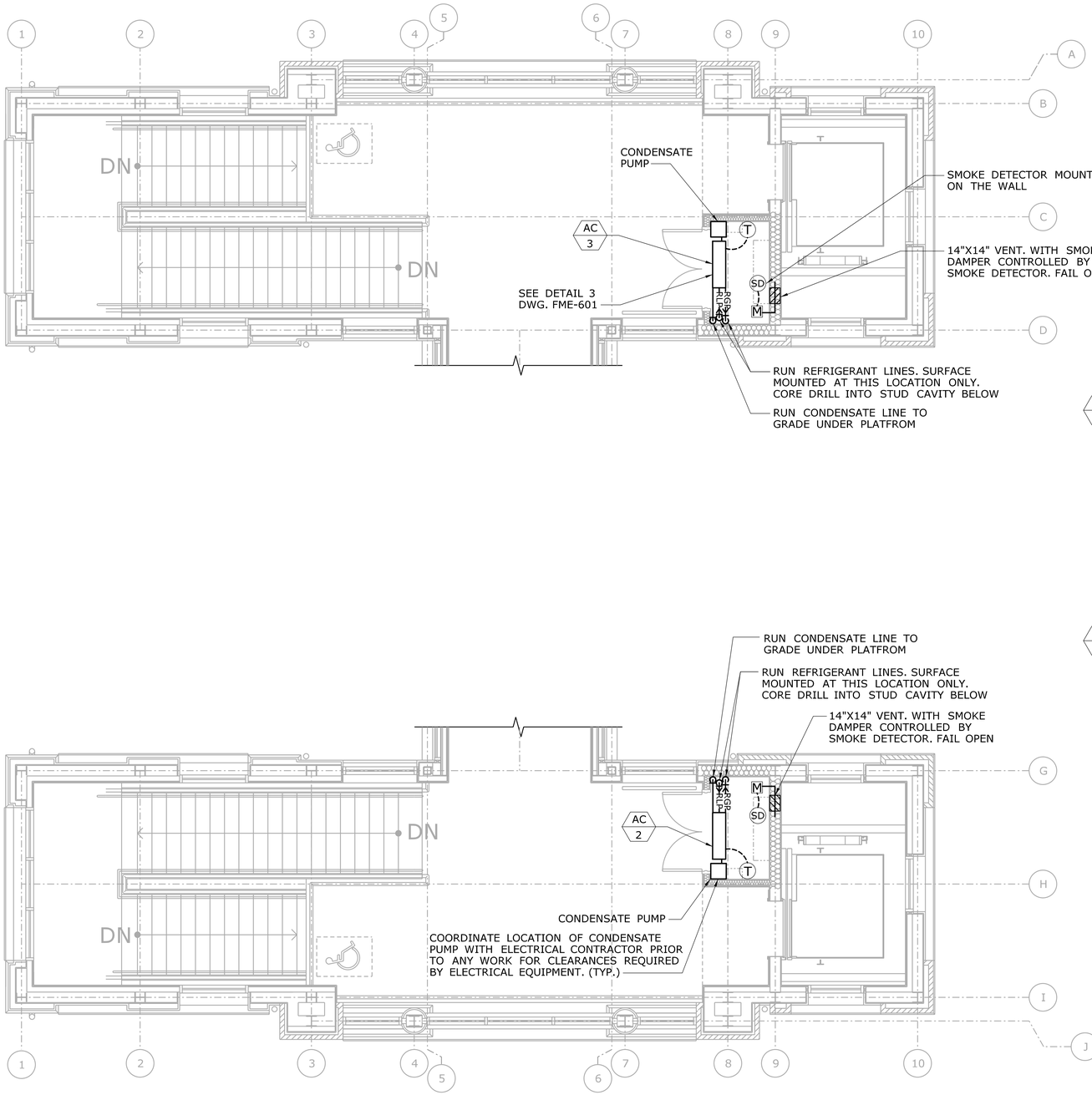
Hatch Mott MacDonald
Suite 100, North Lobby
400 Blue Hill Drive
Westwood, MA 02090

PROJECT TITLE:
NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR

TOWN: **BERLIN**

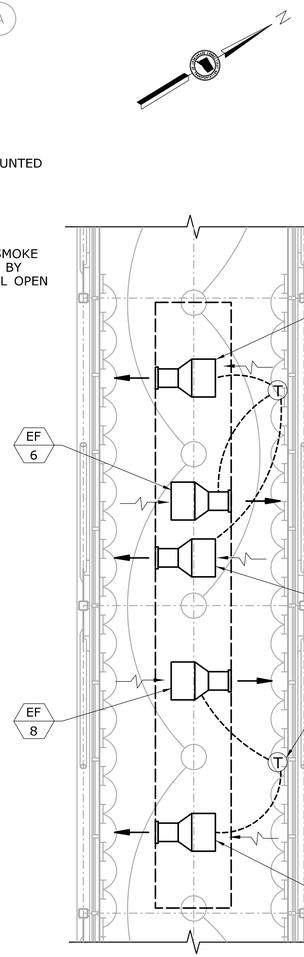
DRAWING TITLE:
MECHANICAL PLANS STATION GROUND LEVEL

PROJECT NO. **170-3155**
DRAWING NO. **FME-101**
SHEET NO. **01.13.004**



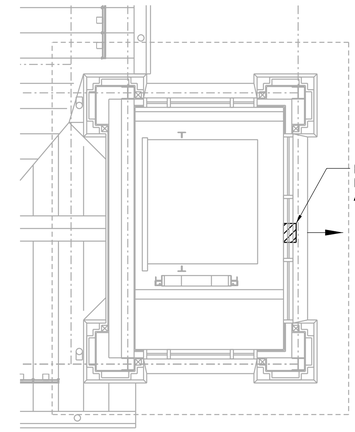
3 - TOWER PLAN PEDESTRIAN BRIDGE LEVEL

SCALE: 1/4" = 1'-0"



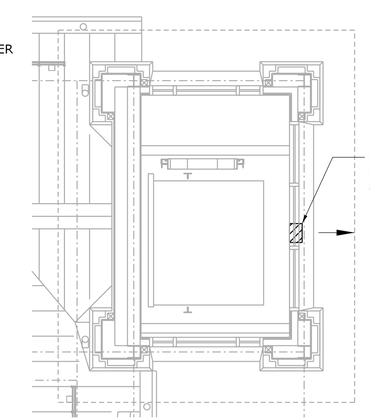
MECHANICAL NOTES:

1. PROVIDE 1" SOUND LINING FOR EXHAUST DUCTWORK (TYPICAL FOR EF-5, 6, 7, 8, AND 9).
2. COORDINATE ALL WORK WITH PLUMBING, ELECTRICAL AND STRUCTURAL DRAWINGS AND CONTRACTORS PRIOR TO ANY WORK.
3. ALL MOTORIZED DAMPERS ARE INTERLOCKED WITH CORRESPONDING EXHAUST FANS.
4. RUN CONDENSATE AND REFRIGERANT PIPING WITHIN WALL CAVITIES.



4 - ELEVATOR TOWER PLAN - WEST

SCALE: 1/4" = 1'-0"



5 - ELEVATOR TOWER PLAN - EAST

SCALE: 1/4" = 1'-0"

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: S. BIRKOK

CHECKED BY: D. NEWMAN

SCALE AS NOTED

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296_007_-04_FME_-102.dgn

SIGNATURE/ BLOCK:

STATE OF CONNECTICUT · DAVID G. NEWMAN · No. 29076 · LICENSED PROFESSIONAL ENGINEER

Hatch Mott MacDonald
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PROJECT TITLE:
NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR

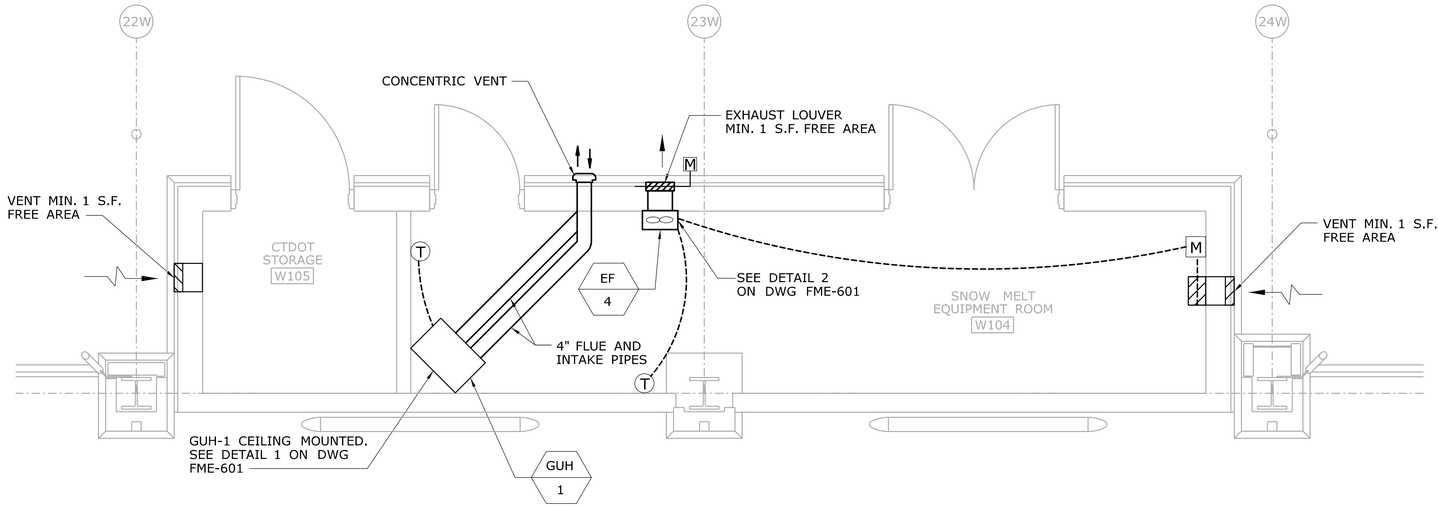
TOWN: **BERLIN**

DRAWING TITLE:
MECHANICAL PLAN PEDESTRIAN BRIDGE

PROJECT NO. **170-3155**

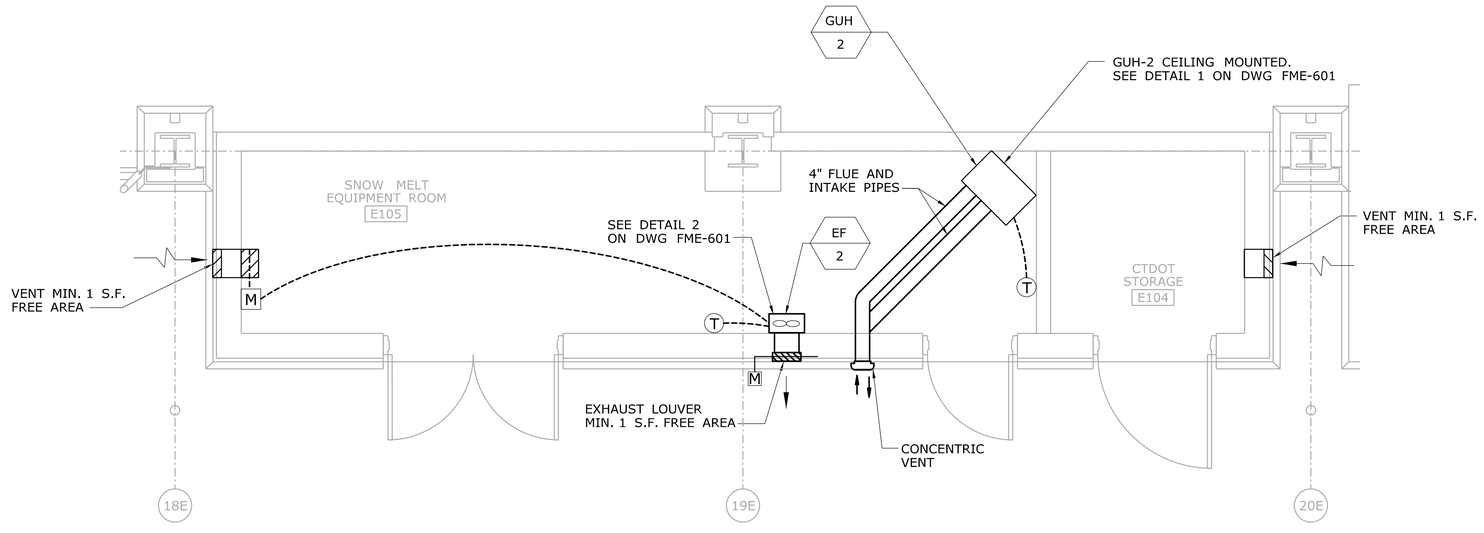
DRAWING NO. **FME-102**

SHEET NO. **01.13.005**



4 - WEST SNOW MELT EQUIPMENT ROOM

SCALE: $^{3}/_{8}$"=1'-0"



5 - EAST SNOW MELT EQUIPMENT ROOM

SCALE: $^{3}/_{8}$"=1'-0"

MECHANICAL NOTES:

1. COORDINATE ALL WORK WITH SNOW MELT EQUIPMENT PRIOR TO ANY WORK.
2. COORDINATE ALL WORK WITH PLUMBING AND ELECTRICAL CONTRACTORS PRIOR TO ANY WORK.

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: S. BIRKOK
CHECKED BY: D. NEWMAN
SCALE: $^{3}/_{8}$" = 1'-0"

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296_007_04_FME_103.dgn

SIGNATURE/ BLOCK:

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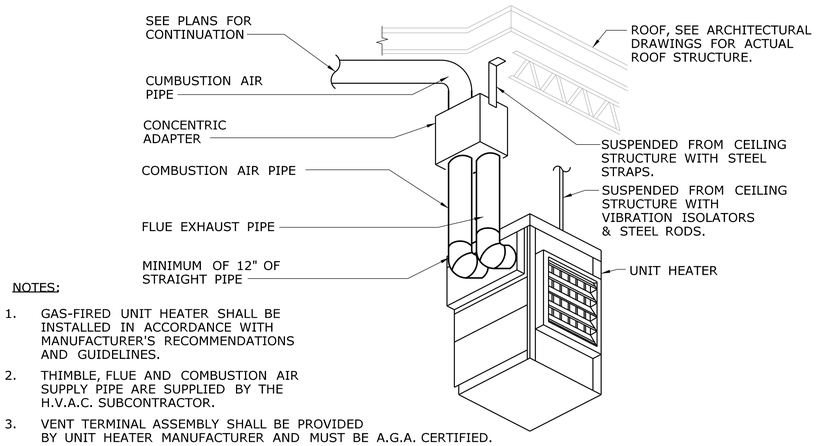
Westwood, MA 02090

PROJECT TITLE:
NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR

TOWN: **BERLIN**

DRAWING TITLE:
MECHANICAL PLAN EQUIPMENT ROOMS

PROJECT NO. **170-3155**
DRAWING NO. **FME-103**
SHEET NO. **01.13.006**

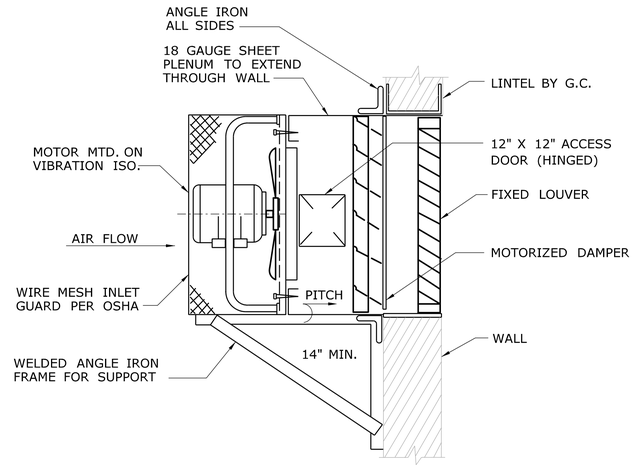


NOTES:

1. GAS-FIRED UNIT HEATER SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND GUIDELINES.
2. THIMBLE, FLUE AND COMBUSTION AIR SUPPLY PIPE ARE SUPPLIED BY THE H.V.A.C. SUBCONTRACTOR.
3. VENT TERMINAL ASSEMBLY SHALL BE PROVIDED BY UNIT HEATER MANUFACTURER AND MUST BE A.G.A. CERTIFIED.
4. EXHAUST CAP MUST BE INSTALLED SO THAT BAFFLES ARE POSITIONED ON HORIZONTAL AND VERTICAL CENTERLINES AS INDICATED.

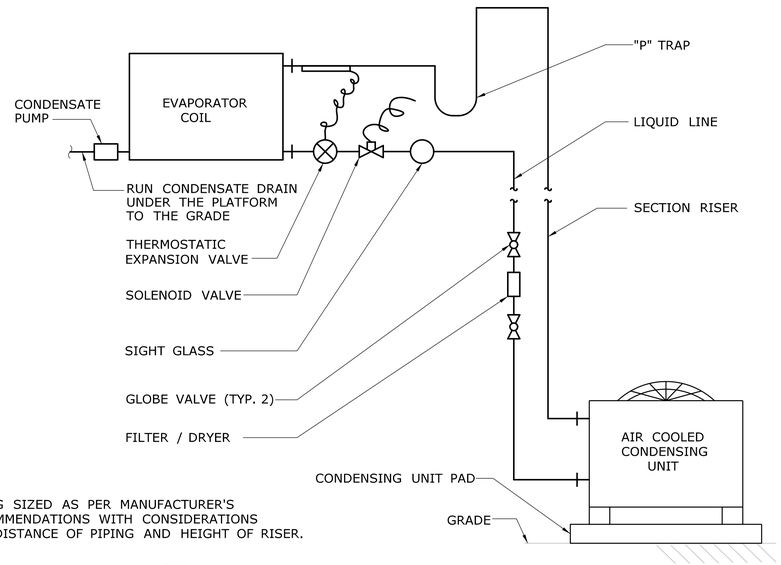
1 - SEALED COMBUSTION GAS FIRED UNIT HEATER MOUNTING DETAIL

NTS



2 - SIDEWALL PROPELLER FAN

NTS

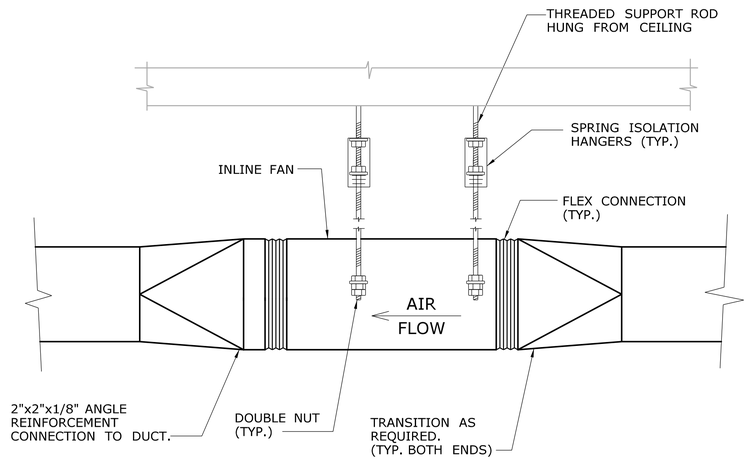


NOTE:

PIPING SIZED AS PER MANUFACTURER'S RECOMMENDATIONS WITH CONSIDERATIONS FOR DISTANCE OF PIPING AND HEIGHT OF RISER.

3 - TYPICAL SPLIT SYSTEM PIPING DETAIL

NTS



4 - IN-LINE PROPELLER FAN

NTS

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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CHECKED BY: D. NEWMAN

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DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296.007_-_04_FME_-_601.dgn

SIGNATURE/ BLOCK:

STATE OF CONNECTICUT · DAVID S. NEWMAN · No. 29878 · LICENSED PROFESSIONAL ENGINEER

Hatch Mott MacDonald
Suite 100, North Lobby
400 Blue Hill Drive
Westwood, MA 02090

PROJECT TITLE:
NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR

TOWN: **BERLIN**

DRAWING TITLE: **MECHANICAL DETAILS**

PROJECT NO. **170-3155**

DRAWING NO. **FME-601**

SHEET NO. **01.13.007**

FAN SCHEDULE

DESIGNATION	LOCATION	SERVICE	TYPE	DRIVE	CFM	RPM	S.P. (IN)	MOTOR (BHP)	MOTOR (HP)	ELECTRICAL DATA			APPROX OPER. WEIGHT (LBS)	MANUFACTURER/MODEL NUMBER	OPTIONS/REMARKS
										V	PH	HZ			
EF-1	ELECTRIC ROOM-EAST	ELECTRIC ROOM	INLINE	BELT	1,000	2,231	1.0	0.65	3/4	208	1	60	50	GREENHECK/BSQ-90-5	①②③④⑤⑥
EF-2	MECHANICAL ROOM-EAST	MECHANICAL ROOM	SIDE WALL	DIRECT	375	1650	0.25	78 W	1/20	115	1	60	39	GREENHECK/S1-10-428-P	①②③④⑤
EF-3	ELECTRIC ROOM-WEST	ELECTRIC ROOM	SIDE WALL	BELT	1,000	1714	0.375	0.17	1/4	115	1	60	50	GREENHECK/SB-1H20-4	①②③④⑤
EF-4	MECHANICAL ROOM-WEST	MECHANICAL ROOM	SIDE WALL	DIRECT	375	1650	0.25	78 W	1/20	115	1	60	39	GREENHECK/S1-10-428-P	①②③④⑤
EF-5	BRIDGE CEILING	BRIDGE	INLINE	DIRECT	1,500	1,450	0.375	-	822W	115	1	60	59	GREENHECK/CSP-A-1410	①③⑤⑥⑦
EF-6	BRIDGE CEILING	BRIDGE	INLINE	DIRECT	1,500	1,450	0.375	-	822W	115	1	60	59	GREENHECK/CSP-A-1410	①③⑤⑥⑦
EF-7	BRIDGE CEILING	BRIDGE	INLINE	DIRECT	1,500	1,450	0.375	-	822W	115	1	60	59	GREENHECK/CSP-A-1410	①③⑤⑥⑦
EF-8	BRIDGE CEILING	BRIDGE	INLINE	DIRECT	1,500	1,450	0.375	-	822W	115	1	60	59	GREENHECK/CSP-A-1410	①③⑤⑥⑦
EF-9	BRIDGE CEILING	BRIDGE	INLINE	DIRECT	1,500	1,450	0.375	-	822W	115	1	60	59	GREENHECK/CSP-A-1410	①③⑤⑥⑦

① MOTORIZED BACKDRAFT DAMPER,
② DAMPER GUARD AND WALL COLLAR,
③ DISCONNECT SWITCH,
④ OSHA MOTOR SIDE GUARD.
⑤ REVERSE ACTING T'STAT (SET AT 85 F ADJ.),
⑥ PROVIDE WITH HANGING SPRING ISOLATORS,
⑦ INSULATE THE FAN WITH SOUND BARRIER COMPOSITES, SIMILAR TO BARYMAT BM-1C.

UNIT HEATER SCHEDULE (GAS & ELECTRIC)

DESIGNATION	LOCATION	SERVICE	TYPE	FAN DATA			HEAT INPUT		ELECTRICAL DATA					WEIGHT (LBS)	MANUFACTURER/MODEL NUMBER	OPTIONS/REMARKS
				CFM	RPM	HP	ELECTRIC (KW)	GAS (MBH)	V	Ø	HZ	AMPS	FAN HP			
EUH-1	ELECTRICAL ROOM-WEST	ELECTRICAL ROOM	HORIZ	350	1600	0.01	3.0 KW	-	480	3	60	3.6	0.01	27	Q-MARK/MUH0341	①②③④
EUH-2	ELECTRICAL ROOM-WEST	ELECTRICAL ROOM	HORIZ	350	1600	0.01	3.0 KW	-	480	3	60	3.6	0.01	27	Q-MARK/MUH0341	①②③④
GUH-1	SNOW MELTING EQ. ROOM-WEST	SNOW MELTING EQ. ROOM	HORIZ	450	1550	0.06		30	115	1	60		0.06	60	REZNOR/UDAS	①③④⑤
EUH-3	ELECTRICAL ROOM-EAST	ELECTRICAL ROOM	HORIZ	350	1600	0.01	3.0 KW	-	480	3	60	3.6	0.01	27	Q-MARK/MUH0341	①②③④
EUH-4	ELECTRICAL ROOM-EAST	ELECTRICAL ROOM	HORIZ	350	1600	0.01	3.0 KW	-	480	3	60	3.6	0.01	27	Q-MARK/MUH0341	①②③④
GUH-2	SNOW MELTING EQ. ROOM-EAST	SNOW MELTING EQ. ROOM	HORIZ	450	1550	0.06		30	115	1	60		0.06	60	REZNOR/UDAS	①③④⑤

① PROVIDE MOUNTING BRACKET
② PROVIDE UNIT MOUNTED THERMOSTAT
③ PROVIDE AND DISCONNECT SWITCH
④ PROVIDE CONCENTRIC VENT KIT FOR SIDEWALL DISCHARGE.
⑤ PROVIDE WALL MOUNTED THERMOSTAT

HEAT PUMP SCHEDULE

SYMBOL	SERVICE	TOTAL COOLING MBH	SENS. COOLING MBH	HEATING MBH @47° F	TOTAL CFM	ELECTRICAL DATA			FAN MOTOR			MANUFACTURER / MODEL NUMBER	REMARKS
						V	PH	HZ	MCA	FLA	W		
AC-1	TELECOM ROOM	30.0	27.8	32	500	208	1	60	1	0.53	-	MITSUBISHI PCA-A30GA	①②③
AC-2	ELEVATOR MACHINE ROOM-EAST	18.0	17.6	19	350	208	1	60	1	0.33	-	MITSUBISHI PKA-A18GAL	①②③
AC-3	ELEVATOR MACHINE ROOM-WEST	18.0	17.6	19	350	208	1	60	1	0.33	-	MITSUBISHI PKA-A18GAL	①②③

① PROVIDE MULTI-SPEED CONTROL (3-SPEED MIN).
② PROVIDE WIRELESS REMOTE CONTROLLER; WIRELESS SIGNAL RECEIVER
③ PROVIDE AC CONDENSATE PUMP (CP-1); LITTLE GIANT VCC-20ULS; 1/30 HP; 120V-1P-60HZ; 70 GPH @ 5' HEAD. PROVIDE SAFETY SWITCH CONNECTS TO ACCOUNT FOR SHUTDOWN, ABS SWITCH COVER AND PUMP STAND; THERMAL OVERLOAD PROTECTION, STAINLESS STEEL MOTOR SHAFT.

AIR DISTRIBUTION DEVICE SCHEDULE

TYPE	SERVICE	AIR PATTERN	MANUFACTURER	REMARKS
A	RETURN/EXHAUST	-	TITUS/350ZFL	SEE NOTES BELOW.
B	SUPPLY	SIDEWALL	TITUS/301FS	SEE NOTES BELOW.

① PROVIDE OPPOSED BLADE DAMPER WITH THE DEVICES.
② PROVIDE TRANSITIONS FROM DUCTS TO DIFFUSER NECKS AS REQUIRED.

OUTDOOR CONDENSING UNIT SCHEDULE

SYMBOL	LOCATION	REFRIGERANT TYPE	SERVICE	RATED CAPACITY		WINTER O.A. (° F)	SUMMER O.A. (° F)	SOUND PRESSURE (dBA)	WEIGHT (IBS)	ELECTRICAL DATA					MANUFACTURER / MODEL NUMBER	REMARKS
				HTG (MBH)	CLG (MBH)					V	PH	HZ	MCA	MOCP		
ACCU-1	OUTSIDE-EAST	R-410A	AC-1	32.0	30.0	0	95	46	165	208	1	60	25	40	MITSUBISHI / PUZ-A30NHA	①②③④
ACCU-2	OUTSIDE-EAST	R-410A	AC-2	19.0	18.0	0	95	46	99	208	1	60	13	20	MITSUBISHI / PUZ-A18NHA	①②③④
ACCU-3	OUTSIDE-WEST	R-410A	AC-3	19.0	18.0	0	95	46	99	208	1	60	13	20	MITSUBISHI / PUZ-A18NHA	①②③④

① REFRIGERANT PIPING SHALL BE SIZED PER MANUFACTURER'S RECOMENDATION AND FIELD VERIFICATION OF PIPE LENGTHS.
② UNIT SHALL COME COMPLETE WITH REFRIGERANT LINE SET KIT.
③ PROVIDE MOUNTING BRACKET AND FLOOR MOUNTED PAD.
④ PROVIDE LOW AMBIENT CONTROL.

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: S. BIRKOK
CHECKED BY: D. NEWMAN
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SIGNATURE/BLOCK: STATE OF CONNECTICUT DAVID G. NEWMAN No. 29878 LICENSED PROFESSIONAL ENGINEER

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PROJECT TITLE:
NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR

TOWN: BERLIN

DRAWING TITLE: MECHANICAL SCHEDULES

PROJECT NO. 170-3155
DRAWING NO. FME-801
SHEET NO. 01.13.008

LEGEND & ABBREVIATIONS

AB	ABOVE	
AD	AREA DRAIN	
AFC	ABOVE FINISH CEILING	
AFF	ABOVE FINISH FLOOR	
AG	AIR GAP	
ATC	ACOUSTIC TILE CEILING	
BFV	BUTTERFLY VALVE	
BV	BALL VALVE	
BLV	BALANCING VALVE	
BWV	BACKWATER VALVE	
C&V	CAPPED & VALVED	
CE	CAP EXISTING	
CLG	CEILING	
CONT	CONTINUOUS	
CTE	CONNECT TO EXISTING	
CO	CLEANOUT	
CV	CHECK VALVE	
CW	COLD WATER PIPING	
DF	DRINKING FOUNTAIN	
DN	DOWN THROUGH FLOOR	
DP	DROP (OR RISE)	
DWG	DRAWING	
EL	ELEVATION	
ETR	EXISTING TO REMAIN	
ETX	EXISTING TO BE REMOVED	
EWC	ELECTRIC WATER COOLER	

FCO	FLUSH FLOOR CLEANOUT	
FD	FLOOR DRAIN	
FFE	FINISH FLOOR ELEVATION	
	FLOW ARROW	
FLR	FLOOR	
FS	FLOOR SINK	
FSP	FIRE STANDPIPE	
FW	FILTERED WATER PIPING	FW
G	FUEL GAS PIPING	G
	FUEL GAS PLUG VALVE	
GM	GAS METER & REGULATOR SET	
GT	GREASE TRAP	
GV	GATE VALVE	
GVB	FUEL GAS VALVE BOX	
H&C	HOT & COLD WATER PIPING	
HB	HOSE BIBB	
HW	HOT WATER PIPING	
HWR	HOT WATER RETURN PIPING	
IE	INVERT ELEVATION	RW
INV	INVERT	RW
IW	INDIRECT WASTE PIPING	IW
	KITCHEN EQUIPMENT DESIGNATION	K1
L	LAVATORY	
MSB	MOP SERVICE BASIN	w"
NC	NORMALLY CLOSED	
NIC	NOT IN CONTRACT	

NPCW	UNSAFE (NON-POTABLE) COLD WATER PIPING	NP
NPHW	UNSAFE (NON-POTABLE) HOT WATER PIPING	NP
NPHWR	UNSAFE (NON-POTABLE) HOT WATER RETURN PIPING	NP
NO	NORMALLY OPEN	
NTS	NOT TO SCALE	
OFCI	OWNER FURNISHED,CONTRACTOR INSTALLED	
OFI	OWNER FURNISHED & INSTALLED	
PG	PRESSURE GAGE	P
PL C	PLASTER CEILING	
PLGD	PLUGGED	
	PLUMBING FIXTURE DESIGNATION	WC-1
PRV	PRESSURE REDUCING VALVE	
PRVA	PRESSURE REGULATING VALVE ASSEMBLY	
PS	PRESSURE SWITCH	P
PVB	PRESSURE VACUUM BREAKER	
RD	ROOF DRAIN	
RPBP	REDUCED PRESSURE BACKFLOW PREVENTOR	
RV	RELIEF VALVE	
RW	BURIED RAINWATER PIPING	RW
RW	RAINWATER PIPING	RW
SC	SPLINE CEILING	
SH	SHOWER	
SK	SINK	
SL	SLOPE (w" PER FOOT)	
S ORW	BURIED SOIL OR WASTE PIPING	
S ORW	SOIL OR WASTE PIPING	

	SOIL OR WASTE STACK	
STR	STRAINER	
SV	BURIED SPECIAL VENT PIPING	SV
SV	SPECIAL VENT PIPING	SV
SW	BURIED SPECIAL WASTE PIPING	SW
SW	SPECIAL WASTE PIPING	SW
T&P	TEMPERATURE & PRESSURE RELIEF VALVE	
TG	TEMPERATURE GAGE	T
TMV	THERMOSTATIC MIXING VALVE	
TOP	TOP OF PIPE ELEVATION	
TP	TRAP PRIMER	TP
TR	THROUGH ROOF	
TS	TAMPER SWITCH	
UN	UNION	
UP	UP (THROUGH SLAB ABOVE)	
UP & DN	UP & DOWN (THROUGH FLOOR SLAB)	
UP & T	UP & TRAP	
UCW	UNSAFE (NON-POTABLE) COLD WATER PIPING	UW
UHW	UNSAFE (NON-POTABLE) HOT WATER PIPING	UW
UHWR	UNSAFE (NON-POTABLE) HOT WATER RETURN PIPING	UW
V	BURIED VENT PIPING	
V	VENT PIPING	
VB	VACUUM BREAKER	
VR	VENT RISE	
VS	VENT STACK	
VTR	VENT THROUGH ROOF	

W&T	WASTE & TRAP	
W&V	WASTE & VENT	
WC	WATER CLOSET	
WCO	WALL CLEANOUT	
WFA	WATER FILTER ASSEMBLY	
WH	WALL HYDRANT	
WHA	WATER HAMMER ARRESTOR	
WMV	WASHING MACHINE VALVE	
WS	WASHER SANITARY	

PLUMBING GENERAL NOTES:

1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL STATE AND LOCAL COUNTY CODES, REGULATIONS AND ORDINANCES.
2. THE CONTRACTOR SHALL OBTAIN A FULL SET OF PLANS AND SPECIFICATIONS FOR THIS PROJECT AND COORDINATE WITH THE OTHER TRADES.
3. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE HIS WORK WITH THE WORK OF ALL OTHER TRADES AND TO PROVIDE ALL REQUIRED OFFSETS IN THE PIPING TO ACCOMPLISH THIS COORDINATION WITH NO ADDITIONAL COST.
4. ALL PLUMBING PLANS ARE DIAGRAMMATIC IN FORM.
5. THE CONTRACTOR SHALL PROVIDE DIMENSIONS, OPERATING WEIGHT, AND OPENINGS TO GENERAL CONTRACTOR AFTER OBTAINING APPROVAL OF EQUIPMENT SHOP DRAWINGS FOR COORDINATION. PHYSICAL DIMENSIONS AND WEIGHTS SHOWN ON THE DRAWING EQUIPMENT SCHEDULES ARE SUBJECT TO CHANGE.
6. ALL NEW EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE UNIT MANUFACTURER'S RECOMMENDATIONS.

NOTES:

1. NOT ALL SYMBOLS MAY BE APPLICABLE TO THIS PROJECT.

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 2/26/2014

DESIGNER/DRAFTER: **S. BIRKOK**

CHECKED BY: **D. NEWMAN**

NOT TO SCALE

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296_007_04_FPL_.001.dgn

SIGNATURE/ BLOCK:

STATE OF CONNECTICUT · DAVID G. NEWMAN · No. 29878 · LICENSED PROFESSIONAL ENGINEER

Hatch Mott MacDonald
Suite 100, North Lobby
400 Blue Hill Drive
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PROJECT TITLE:
NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR

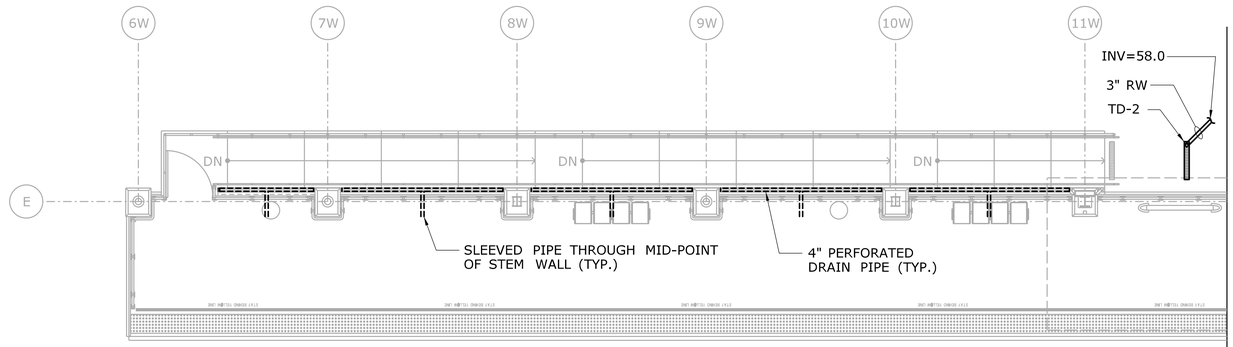
TOWN: **BERLIN**

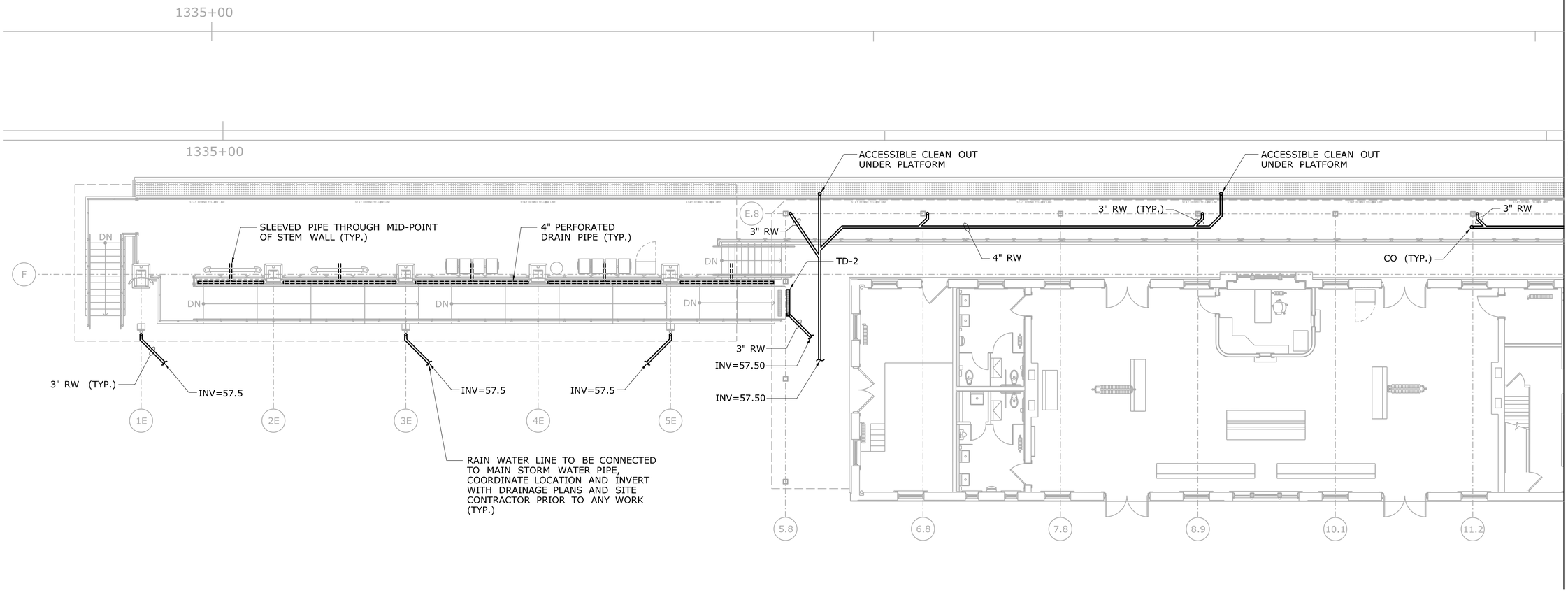
DRAWING TITLE:
PLM. GENERAL NOTES, LEGEND & ABBREV.

PROJECT NO. **170-3155**
DRAWING NO. **FPL-001**
SHEET NO. **01.13.009**

PLUMBING NOTES:

1. COORDINATE INVERT OF RAIN WATER PIPING WITH SITE DRAINAGE AND ARCHITECTURAL PLANS FOR PROPER SLOPE OF THE PIPING PRIOR TO ANY WORK.
2. SEE DETAIL 4 ON DWG FPL-601 FOR DOWNSPOUT BOOT CONNECTION.
3. MINIMUM SLOPE OF RAIN WATER PIPING SHALL BE 1/8" PER FOOT.
4. COORDINATE RAIN WATER PIPING AND TRENCH DRAINS WITH HYDRONIC SNOW MELT PIPING AND STRUCTURAL DRAWINGS PRIOR TO ANY WORK.
5. COORDINATE INVERT ELEVATIONS WITH STRUCTURAL AND SITE DRAINAGE TO AVOID PENETRATING FOUNDATIONS WHERE POSSIBLE
6. COORDINATE INVERT OF 4" PERFORATED DRAIN PIPE WITH STRUCTURAL AND DRAINAGE DRAWINGS FOR PROPER SLOPE AND SLEEVES.





PLUMBING PLAN - PART A
SCALE: 1/8"=1'-0"

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: **S. BIRKOK**
CHECKED BY: **D. NEWMAN**
SCALE: 1/8" = 1'-0"

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296_007_04_FPL_101.dgn

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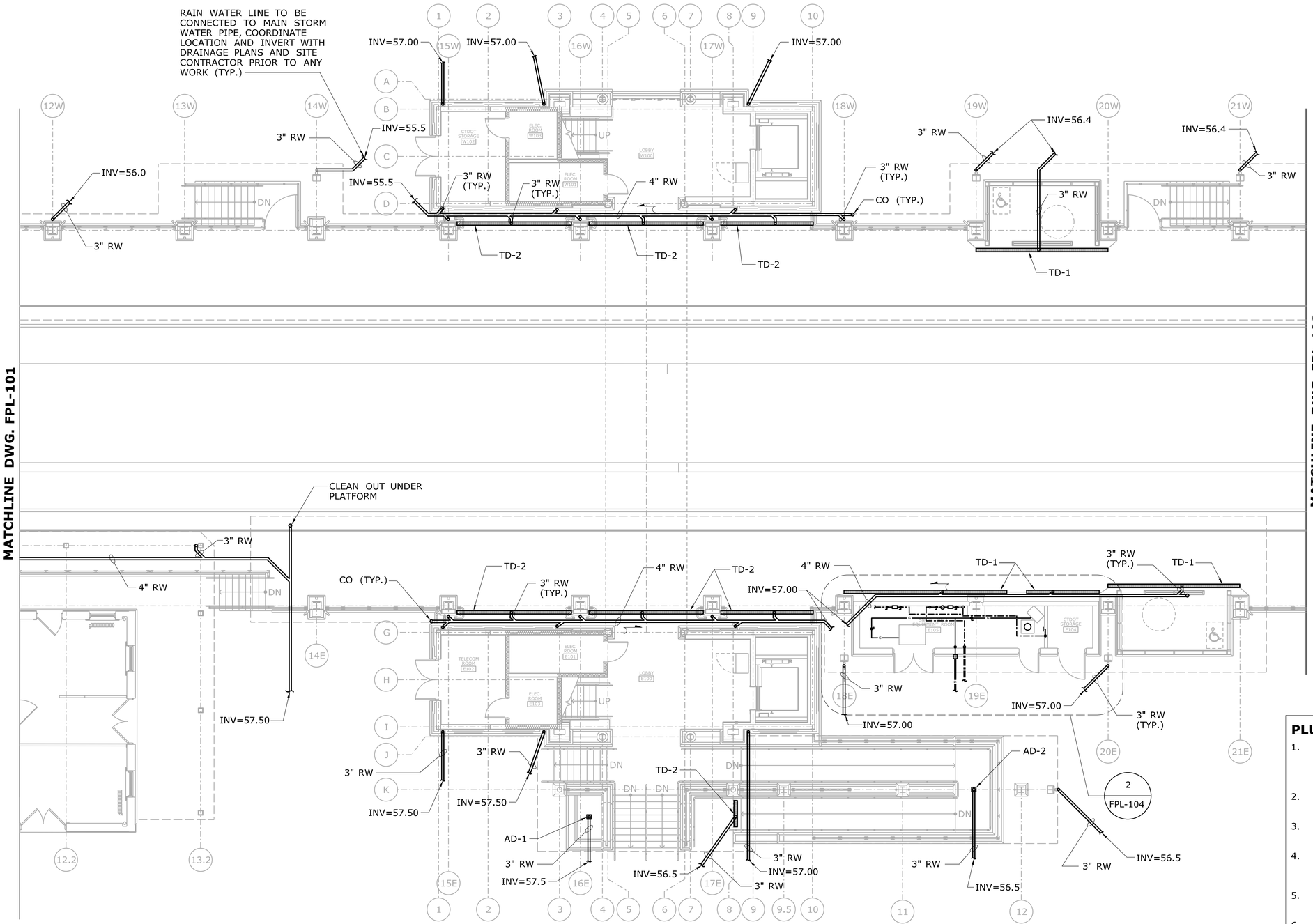
400 Blue Hill Drive
Westwood, MA 02090

PROJECT TITLE:
NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR

TOWN: **BERLIN**

DRAWING TITLE:
PLUMBING PLAN PLATFORM PLAN PART A

PROJECT NO. **170-3155**
DRAWING NO. **FPL-101**
SHEET NO. **01.13.010**



PLUMBING PLAN - PART B

SCALE: 1/8"=1'-0"

PLUMBING NOTES:

1. COORDINATE INVERT OF RAIN WATER PIPING WITH SITE DRAINAGE AND ARCHITECTURAL PLANS FOR PROPER SLOPE OF THE PIPING PRIOR TO ANY WORK.
2. SEE DETAIL 4 ON DWG FPL-601 FOR DOWNSPOUT BOOT CONNECTION.
3. MINIMUM SLOPE OF RAIN WATER PIPING SHALL BE 1/8" PER FOOT.
4. COORDINATE RAIN WATER PIPING AND TRENCH DRAINS WITH HYDRONIC SNOW MELT PIPING AND STRUCTURAL DRAWINGS PRIOR TO ANY WORK.
5. COORDINATE RAIN WATER PIPING WITH WATER AND GAS SERVICE PIPING PRIOR TO ANY WORK.
6. COORDINATE INVERT ELEVATIONS WITH STRUCTURAL AND SITE DRAINAGE PLANS TO AVOID PENETRATING FOUNDATIONS WHERE POSSIBLE.

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: S. BIRKOK
CHECKED BY: D. NEWMAN
SCALE: 1/8" = 1'-0"

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA..CGR..CPS..0170-2296..007...04..FPL...102.dgn

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Hatch Mott MacDonald
Suite 100, North Lobby
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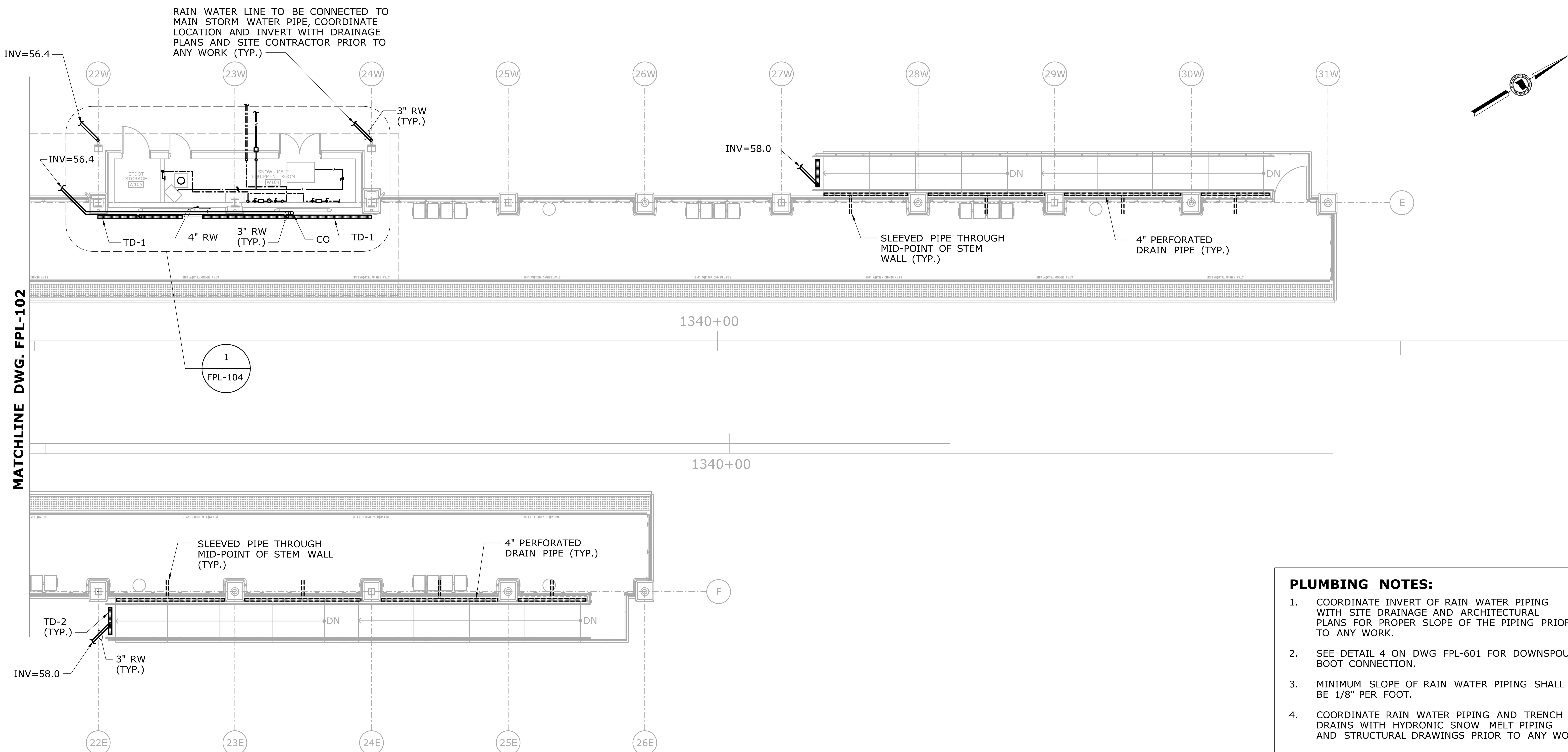
Westwood, MA 02090

PROJECT TITLE:
NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR

TOWN: **BERLIN**

DRAWING TITLE: **PLUMBING PLAN PLATFORM PLAN PART B**

PROJECT NO. **170-3155**
DRAWING NO. **FPL-102**
SHEET NO. **01.13.011**



PLUMBING NOTES:

1. COORDINATE INVERT OF RAIN WATER PIPING WITH SITE DRAINAGE AND ARCHITECTURAL PLANS FOR PROPER SLOPE OF THE PIPING PRIOR TO ANY WORK.
2. SEE DETAIL 4 ON DWG FPL-601 FOR DOWNSPOUT BOOT CONNECTION.
3. MINIMUM SLOPE OF RAIN WATER PIPING SHALL BE 1/8" PER FOOT.
4. COORDINATE RAIN WATER PIPING AND TRENCH DRAINS WITH HYDRONIC SNOW MELT PIPING AND STRUCTURAL DRAWINGS PRIOR TO ANY WORK.
5. COORDINATE RAIN WATER PIPING WITH WATER AND GAS SERVICE PIPING PRIOR TO ANY WORK.
6. COORDINATE INVERT ELEVATIONS WITH STRUCTURAL AND SITE DRAINAGE PLANS TO AVOID PENETRATING FOUNDATIONS WHERE POSSIBLE.
7. COORDINATE INVERT OF 4" PERFORATED DRAIN PIPE WITH STRUCTURAL AND DRAINAGE DRAWINGS FOR PROPER SLOPE AND SLEEVES.

PLUMBING PLAN - PART C

SCALE: 1/8"=1'-0"

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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: **S. BIRKOK**

CHECKED BY: **D. NEWMAN**

SCALE: $\frac{1}{8}$" = 1'-0"

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

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PROJECT TITLE: **NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR**

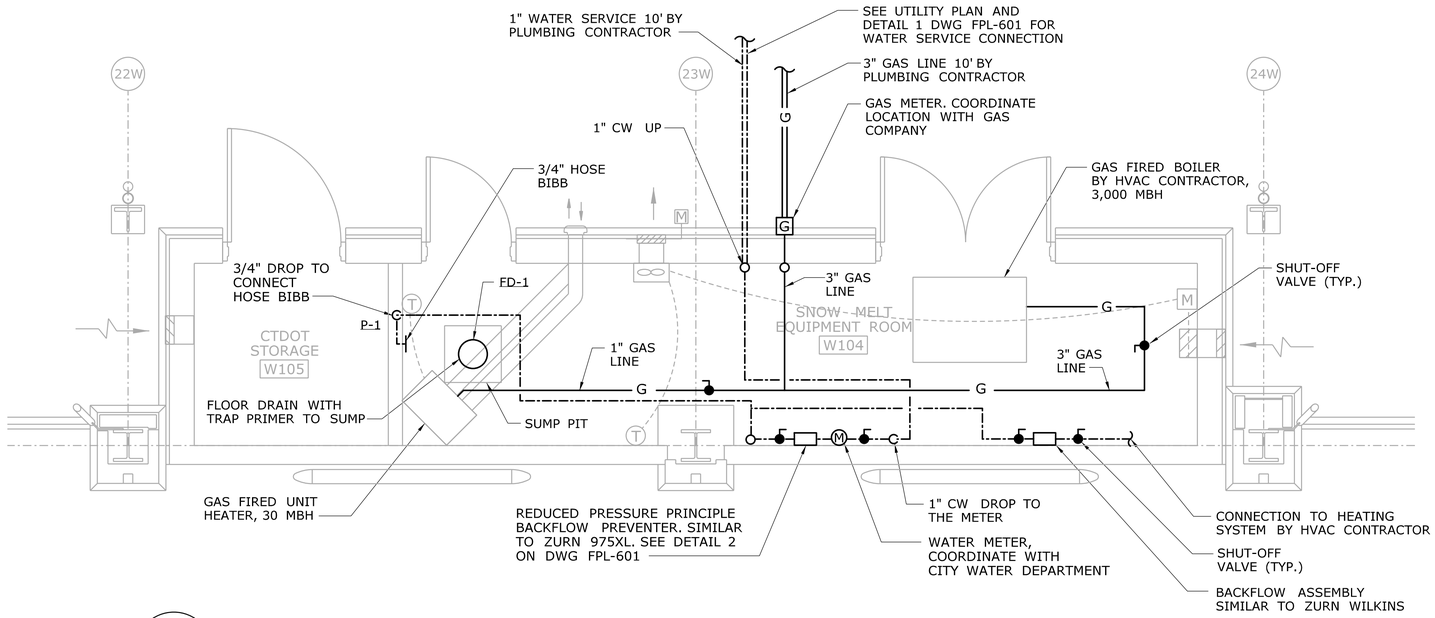
TOWN: **BERLIN**

DRAWING TITLE: **PLUMBING PLAN PLATFORM PLAN PART C**

PROJECT NO. **170-3155**

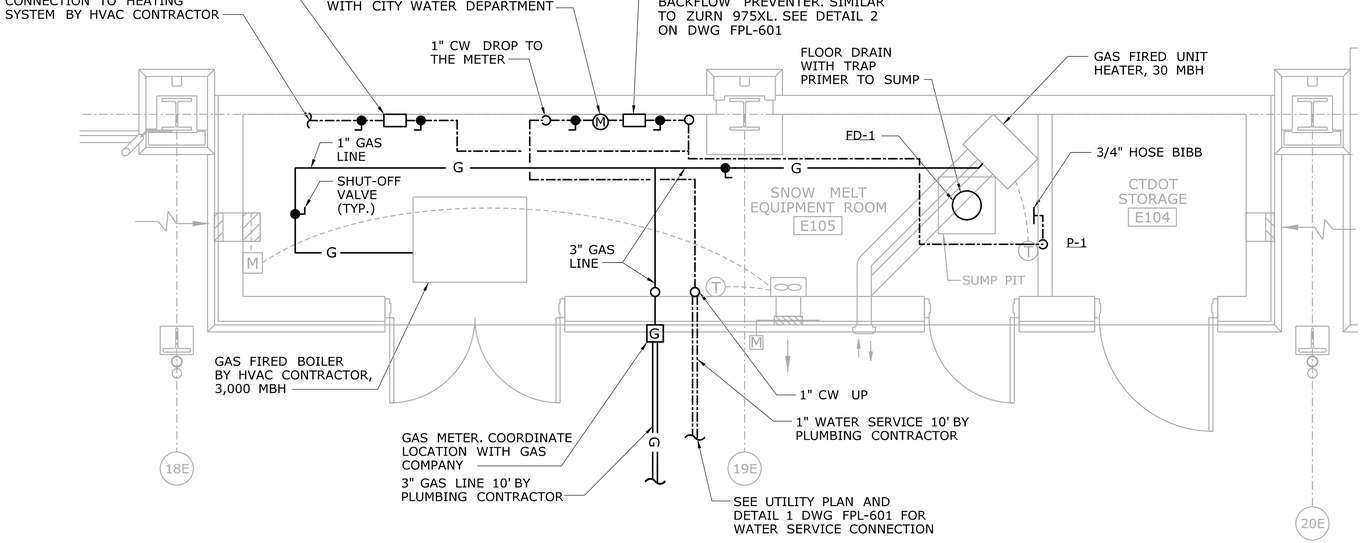
DRAWING NO. **FPL-103**

SHEET NO. **01.13.012**



1 / FPL-103 **PLUMBING PLAN - SNOW MELT EQUIPMENT ROOM - WEST**

SCALE: 3/8"=1'-0"



2 / FPL-102 **PLUMBING PLAN - SNOW MELT EQUIPMENT ROOM - EAST**

SCALE: 3/8"=1'-0"

PLUMBING NOTES:

1. COORDINATE ALL WORK AND EQUIPMENT WITH OTHER TRADES AND EQUIPMENT PRIOR TO ANY WORK.

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: **S. BIRKOK**

CHECKED BY: **D. NEWMAN**

SCALE: 3/8" = 1'-0"

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296_007_04_FPL_104.dgn

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Suite 100, North Lobby
400 Blue Hill Drive
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PROJECT TITLE:
NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR

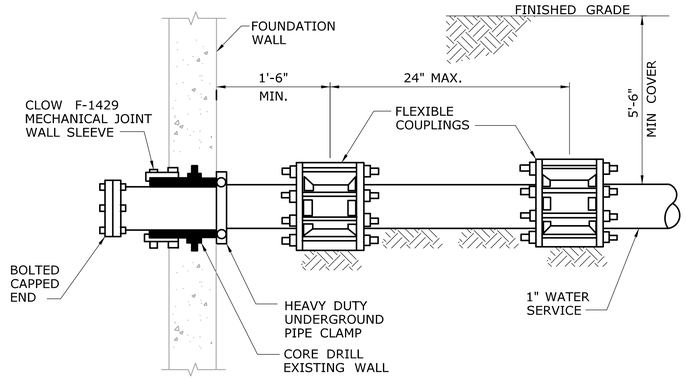
TOWN: **BERLIN**

DRAWING TITLE: **PLUMBING PLAN EQUIPMENT ROOMS**

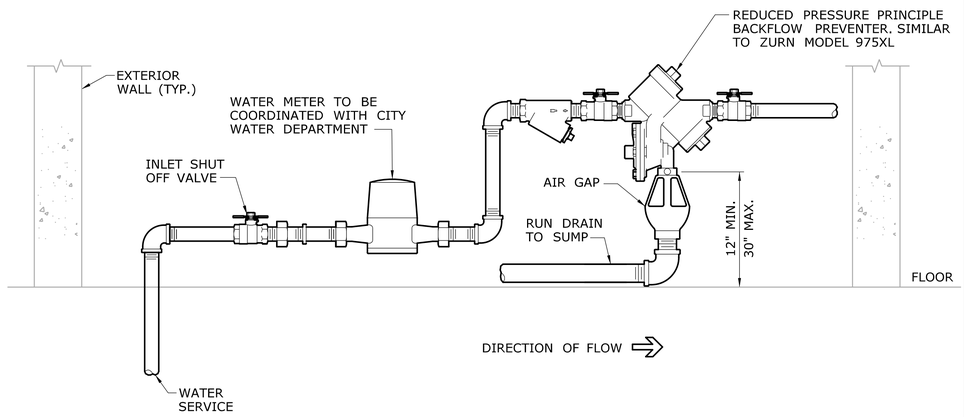
PROJECT NO. **170-3155**

DRAWING NO. **FPL-104**

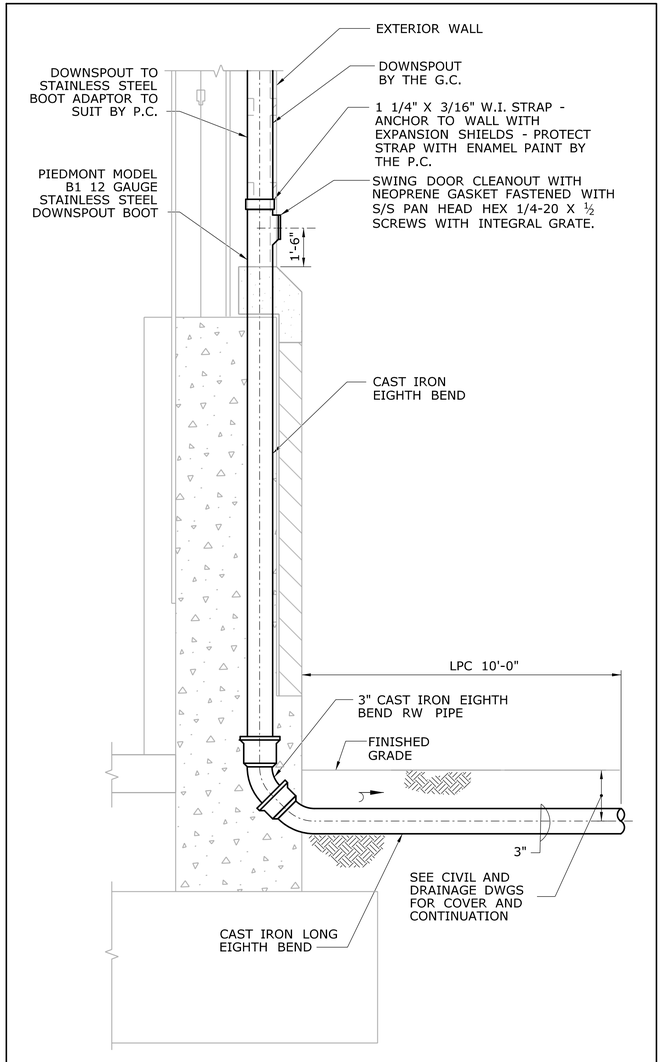
SHEET NO. **01.13.013**



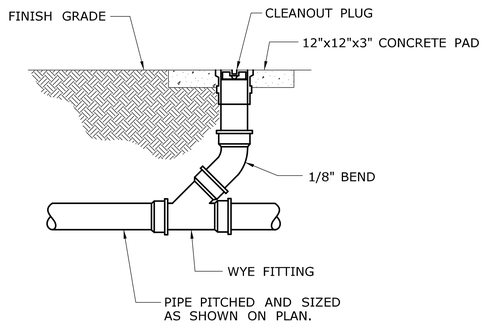
1 - WATER SERVICE THRU EXT. WALL DETAIL
NOT TO SCALE



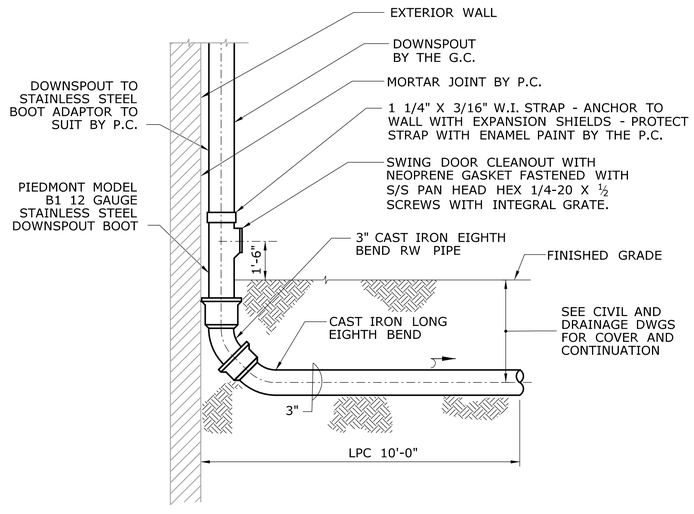
2 - REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER ASSEMBLY AND WATER METER DETAIL AT SNOW MELT EQUIPMENT ROOMS
NOT TO SCALE



5 - DOWNSPOUT BOOT DIAGRAM (TYPICAL AT TOWERS)
NOT TO SCALE



3 - GROUND CLEANOUT
NOT TO SCALE



4 - DOWNSPOUT BOOT DIAGRAM (TYPICAL)
NOT TO SCALE

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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: S. BIRKOK
CHECKED BY: D. NEWMAN
SCALE AS NOTED

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296_007_-_04_FPL_-_601.dgn

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Westwood, MA 02090

PROJECT TITLE:
NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR

TOWN: **BERLIN**

DRAWING TITLE: **PLUMBING DETAILS**

PROJECT NO. **170-3155**
DRAWING NO. **FPL-601**
SHEET NO. **01.13.014**

DRAINAGE EQUIPMENT SCHEDULE

SYMBOL	TYPE	MFGR	MODEL	OUTLET	STRAINER	REMARKS
TD-1	TRENCH DRAIN	ZURN	Z-884	3-1/4	CAST IRON	NON-SLOPED, HEEL PROOF GRATE, VANDAL PROOF, SEDIMENT BUCKET CONTRACTOR TO DETERMINE EXACT LENGTH OF DRAIN
TD-2	TRENCH DRAIN	POLYCAST	601	4-3/8"	CAST IRON	INTEGRAL SLOPED, HEEL PROOF GRATE, VANDAL PROOF, SEDIMENT BUCKET CONTRACTOR TO DETERMINE EXACT LENGTH OF DRAIN
FD-1	FLOOR DRAIN	ZURN	Z-541	4"	CAST IRON	PROVIDE WITH SEDIMENT BASKET
AD-1	AREA DRAIN	ZURN	Z-352	4"	CAST IRON	PROVIDE WITH D.C.C.I. BODY WITH BRONZE DOME AND STAINLESS STEEL MESH SCREEN, VANDAL PROOF SECURED TOP
AD-2	AREA DRAIN	ZURN	Z-535	4"	CAST IRON	PROVIDE WITH A.R.C. ALUMINUM BODY AND TOP, AND CAST IRON GRATE, AND LOCKHING DEVICE.

PLUMBING FIXTURE CONNECTION SCHEDULE

FIXTURE	SYMBOL	SOIL/ WASTE	VENT	COLD WATER	HOT WATER
HOSE BIBB	P-1	-	-	3/4"	-

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: **S. BIRKOK**

CHECKED BY: **D. NEWMAN**

NOT TO SCALE

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296_007_04_FPL_801.dgn

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Westwood, MA 02090

PROJECT TITLE:
NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR

TOWN: **BERLIN**

DRAWING TITLE: **PLUMBING SCHEDULES**

PROJECT NO. **170-3155**

DRAWING NO. **FPL-801**

SHEET NO. **01.13.015**

GENERAL NOTES

1. THE HEATING, VENTILATING AND AIR CONDITIONING (HVAC) CONTRACTOR SHALL VISIT THE SITE TO DETERMINE ALL PRE-EXISTING CONDITIONS AND WORK NECESSARY PRIOR TO SUBMISSION OF BID PRICE. EXTRA PAYMENT OR COMPENSATION FOR WORK REQUIRED DUE TO EXISTING CONDITIONS THAT WOULD HAVE BEEN OBSERVED DURING THE SITE EXAMINATION WILL NOT BE MADE.
2. THE HVAC CONTRACTOR SHALL BE FAMILIAR WITH ALL CONTRACT DOCUMENTS FOR ALL TRADES AND COORDINATE WITH OTHER CONTRACTORS.
3. DRAWINGS ARE DIAGRAMMATIC ONLY, FINAL ROUTING OF DUCTWORK, PIPING AND EQUIPMENT LOCATIONS SHALL BE DETERMINED IN THE FIELD. ADDITIONAL OFFSETS, ELBOWS, ETC., SHALL BE DEMOLISHED WITHOUT ADDITIONAL COST TO THE OWNER.
4. DIMENSIONS SHOWN ON PLANS ARE HORIZONTAL, DIMENSIONS SHOWN IN ELEVATION ARE VERTICAL EXCEPT THAT, IN WAY OF STRUCTURAL STEEL, DIMENSIONS ARE MEASURED PERPENDICULAR TO FLANGE.
5. ALL DUCTWORK SHALL BE CONSTRUCTED AND INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF SMACNA STANDARDS.
6. MINIMUM SIZE OF ALL HVAC PIPING SHALL BE 3/4" UNLESS OTHERWISE NOTED.
7. THE HVAC CONTRACTOR SHALL COORDINATE ALL ELECTRICAL AND PLUMBING REQUIREMENTS WITH THE ELECTRICAL AND PLUMBING CONTRACTORS.
8. THE HVAC CONTRACTOR SHALL FIELD MEASURE EXACT SIZES AND VERIFY ALL OPENINGS FOR SHAFTS AND LOUVERS PRIOR TO SUBMISSION OF SHOP DRAWINGS AND INSTALLATION.
9. ALL HVAC WORK SHALL BE IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL CODES.
10. ALL HVAC EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
11. MANUFACTURERS' MODEL NUMBERS ARE SPECIFIED SOLELY TO ESTABLISH STANDARDS OF QUALITY FOR PERFORMANCE AND MATERIAL.
12. PROVIDE ACCESS PANELS FOR EQUIPMENT THAT REQUIRES PERIODIC SERVICE.
13. RUN DUCTS AND PIPING CONCEALED, UNLESS SPECIFIED OTHERWISE AND CLEAR OF CEILING INSERTS.
14. FIRE DAMPERS AND ACCESS PANELS SHALL BE INSTALLED AT ALL 2-HOUR RATED PARTITIONS, FLOOR PENETRATIONS AND WHERE REQUIRED BY NFPA 90A. REFER TO ARCHITECTURAL DRAWINGS FOR PARTITION LOCATIONS.
15. SHUTOFF VALVES SHALL BE INSTALLED IN THE SUPPLY AND RETURN PIPING TO ALL EQUIPMENT TO ALLOW FOR SERVICING. UNIONS OR FLANGES SHALL BE ARRANGED SUCH THAT EQUIPMENT CAN BE SERVICED WITHOUT CUTTING, AND WITH MINIMAL DISRUPTION OF PIPING SERVING THE EQUIPMENT.
16. INSULATE PIPING AS SPECIFIED; PERFORM TESTS SPECIFIED BEFORE INSULATING.
17. PROVIDE CLAMPS, OFFSETS, EXPANSION JOINTS, ANCHORS AND GUIDES AS NECESSARY TO PREVENT STRESS ON PIPING.
18. PROVIDE VENTS AT HIGH POINTS IN PIPING SYSTEMS AND DRAIN VALVES AT LOW POINTS.
19. PROVIDE GAUGE FITTINGS AND THERMOMETER WELLS AT HOT WATER SUPPLY AND RETURN BRANCHES AND AT INLETS AND OUTLETS.
20. PITCH PIPING 1 INCH IN 20 FEET IN DIRECTION OF FLOW.
21. PROVIDE BALANCING VALVES AT SYSTEM LOOP RETURNS, PROVIDE SHUT-OFF VALVES AT SYSTEM LOOP SUPPLIES.
22. THE HVAC CONTRACTOR SHALL FURNISH TO THE GENERAL CONTRACTOR ALL INFORMATION REQUIRED FOR SETTING OF WALL, AND PARTITION OPENINGS FOR HVAC WORK. THIS INFORMATION SHALL BE FURNISHED IN A TIMELY MANNER SUCH THAT CONSTRUCTION SCHEDULE IS NOT JEOPARDIZED.
23. HVAC CONTRACTOR SHALL VERIFY ALL THE EXISTING CONDITIONS SHOWN ON THE DRAWINGS INCLUDING DUCTWORK AND PIPING THAT ARE INSTALLED IN ENCLOSED CHASE.
24. ALL WORK SHALL BE COORDINATED WITH OWNER'S REPRESENTATIVE, AND THE OTHER TRADES.
25. WHERE DRAWINGS CONFLICT OR ARE UNCLEAR, ADVISE PROJECT ENGINEER IN WRITING BEFORE AWARD OF CONTRACT.
26. THE HVAC CONTRACTOR SHALL INVESTIGATE AVAILABLE SPACE FOR ALL EQUIPMENT IN CEILING BEFORE SUBMISSION OF SHOP DRAWINGS.
27. TEMPORARY DUCTWORK AND/OR PIPING REQUIRED FOR PHASING OR SUPPORTING EXISTING SERVICES OR OCCUPANCY FUNCTIONS SHALL BE PROVIDED NO ADDITIONAL COST TO THE OWNER.
28. COORDINATE ALL MOTOR, STARTER AND, DISCONNECT REQUIREMENTS WITH ELECTRICAL SUBCONTRACTOR FOR ALL EQUIPMENT REQUIRING SAME.
29. ALL EXPOSED EQUIPMENT (GRILLES, UNIT HEATER, ETC.) SHALL HAVE COLORS SELECTED BY THE PROJECT ENGINEER UNLESS OTHERWISE NOTED.
30. ALL HVAC EQUIPMENT SHALL BE INSTALLED IN SUCH A WAY SO THAT LIGHTS DO NOT BLOCK ACCESS TO UNITS AND RELATED ACCESSORIES.

GENERAL ABBREVIATIONS

A	COMPRESSED AIR
AC	AIR CONDITIONING UNIT
ACCU	AIR COOLED CONDENSING UNIT
ACD	AUTOMATIC CONTROL DAMPER
AD	ACCESS DOOR
AHU	AIR HANDLING UNIT
AFF	ABOVE FINISHED FLOOR
AFMD	AIR FLOW MEASURING DEVICE
AP	ACCESS PANEL
APD	AIR PRESSURE DROP (INCHES OF WATER)
AS	AIR SEPARATOR
ATC	AUTOMATIC TEMPERATURE CONTROL
AV	AIR VENT (AUTOMATIC)
B	BOILER
BDD	BACKDRAFT DAMPER
BHP	BRAKE HORSE POWER
BTU/H	BRITISH THERMAL UNITS PER HOUR
C	CONTRACTOR
CACU	COMPUTER ROOM A.C. UNIT
CC	COOLING COIL
CF	CHEMICAL FEED
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CH	CHILLER
CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
CM	CONSTRUCTION MANAGER
CO	CLEAN OUT
COND	CONDENSATE
CP	CONDENSATE PUMP
CT	COOLING TOWER
CTR	COOLING TOWER RETURN
CTS	COOLING TOWER SUPPLY
CU	CONDENSING UNIT
CUH	CABINET UNIT HEATER
CW	CITY WATER
D	DRAIN
DBT	DRY BULB TEMP. DEGREES F.
DIA	DIAMETER
DOV	DRAIN OFF VALVE
DTR	DUAL TEMPERATURE WATER RETURN
DTS	DUAL TEMPERATURE WATER SUPPLY
DX	DIRECT EXPANSION
E	EXISTING (BEFORE SYMBOL)
EA	EXHAUST AIR DEVICE
EHC	ELECTRIC HEATING COIL
EAT	ENTERING AIR TEMPERATURE
EBB	ELECTRIC BASEBOARD
EC	ELECTRICAL CONTRACTOR
EF	EXHAUST FAN
ESP	EXTERNAL STATIC PRESSURE
ET	EXPANSION TANK
ETBR	EXISTING TO BE REMOVED
ETR	EXISTING TO REMAIN
EUH	ELECTRIC UNIT HEATER
EWT	ENTERING WATER TEMPERATURE
EXP	EXPANSION
F	FILL
FA	FRESH AIR
FCU	FAN COIL UNIT
FD	FIRE DAMPER
FF	FINAL FILTER
FLA	FULL LOAD AMPS
FOR	FUEL OIL RETURN
FOS	FUEL OIL SUPPLY
FPB	FAN POWERED TERMINAL BOX
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FS	FLOW SWITCH
FSD	FIRE & SMOKE DAMPER
G	NATURAL GAS
GA	GAUGE
GAL	GALLONS
GC	GENERAL CONTRACTOR
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GR	GLYCOL RETURN
GS	GLYCOL SUPPLY
GUH	GAS UNIT HEATER
H	HUMIDIFIER
HG	HOT GAS
HP	HORSEPOWER
HPR	HIGH PRESSURE CONDENSATE RETURN
HPS	HIGH PRESSURE STEAM SUPPLY (60# AND UP)
HTHW	HIGH TEMPERATURE HOT WATER
HV	HEATING & VENTILATING UNIT
HVAC	HEATING, VENTILATING & AIR CONDITIONING
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY
HX	HEAT EXCHANGER
ID	INSIDE DIAMETER
IU	INDUCTION UNIT
KW	KILOWATT
KWH	KILOWATT HOUR
LAT	LEAVING AIR TEMPERATURE
LBS/HR	POUNDS PER HOUR
LPR	LOW PRESSURE CONDENSATE RETURN
LPS	LOW PRESSURE STEAM SUPPLY (2# TO 15#)
LRA	LOCKED ROTOR AMPS
LTHW	LOW TEMPERATURE HOT WATER
LWT	LEAVING WATER TEMPERATURE
MAX	MAXIMUM
MBH	1,000 BTU PER HOUR
MCF	1,000 CUBIC FEET
MD	MOTORIZED DAMPER
MFG'R	MANUFACTURER
MIN	MINIMUM
MPR	MEDIUM PRESSURE CONDENSATE RETURN
MPS	MEDIUM PRESSURE STEAM SUPPLY (16# TO 59#)
MTD	MOUNTED
MTHW	MEDIUM TEMPERATURE HOT WATER
MUA	MAKE-UP AIR
MV	AIR VENT (MANUAL)
NA	NOT APPLICABLE
NC	NORMALLY CLOSED
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
NOM	NOMINAL
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OBD	OPPOSED BLADE DAMPER
OD	OUTSIDE DIAMETER
P	PUMP
PC	PLUMBING CONTRACTOR
PCHWR	PROCESSED CHILLED WATER RETURN
PCHWS	PROCESSED CHILLED WATER SUPPLY
PD	PRESSURE DROP (FEET OF WATER)
PF	PRE-FILTER
PH	PRE-HEAT COIL
PRV	PRESSURE REDUCING VALVE
PS	PRESSURE SWITCH
PSIA	POUNDS PER SQUARE INCH ABSOLUTE
PSIG	POUNDS PER SQUARE INCH GAGE
R	RETURN AIR DEVICE
RA	RETURN AIR
RAF	RETURN AIR FAN
RC	REHEAT COIL
RH	RELATIVE HUMIDITY
RL	REFRIGERANT LIQUID
RP	RADIANT PANEL
RPM	REVOLUTIONS PER MINUTE
RS	REFRIGERANT SUCTION
RTU	ROOF TOP UNIT
S	SUPPLY AIR DEVICE
SA	SUPPLY AIR
SAU	SOUND ATTENUATING UNIT
SD	SMOKE DAMPER
SF	SUPPLY AIR FAN
SG	SPECIFIC GRAVITY
SMWS	SNOW MELT WATER SUPPLY
SMWR	SNOW MELT WATER RETURN
SP	STATIC PRESSURE (INCHES OF WATER)
SPC	STATIC PRESSURE CONTROLLER
T	TRANSFER AIR DEVICE
TAC	THRU WALL AIR CONDITIONER
TB	TERMINAL BOX
TEMP	TEMPERATURE
TSP	TOTAL STATIC PRESSURE
TW	THERMOMETER WELL
TYP	TYPICAL
UC	UNDER CUT
UH	UNIT HEATER
UV	UNIT VENTILATOR
V	VOLTS
VAV	VARIABLE AIR VOLUME TERMINAL BOX
VD	VOLUME DAMPER
VFD	VARIABLE FREQUENCY DRIVE
VP	VACUUM PUMP
VTR	VENTED THROUGH ROOF
W	WATTS
WAC	WINDOW AIR CONDITIONER
WBT	WET BULB TEMP. DEGREES F.
WH	WALL HEATER
WMS	WIRE MESH SCREEN
WPD	WATER PRESSURE DROP (FEET)

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: S. BIRKOK
CHECKED BY: D. NEWMAN
NOT TO SCALE

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296_007_-04_FSM_-001.dgn

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STATE OF CONNECTICUT DAVID G. NEWMAN No. 29078 LICENSED PROFESSIONAL ENGINEER

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PROJECT TITLE:
NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR

TOWN: BERLIN

DRAWING TITLE:
HYDRONIC SNOW MELT NOTES AND ABBREV.

PROJECT NO. 170-3155
DRAWING NO. FSM-001
SHEET NO. 01.13.016

SHEETMETAL SYMBOLS

DOUBLE LINE / SINGLE LINE

- SUPPLY AIR DUCT TURN 90° UP
- SUPPLY AIR DUCT TURN 90° DOWN
- RET./EXH. AIR DUCT TURN 90° UP
- RET./EXH. AIR DUCT TURN 90° DOWN
- ROUND DUCT TURN 90° UP
- ROUND DUCT TURN 90° DOWN
- SUPPLY AIR DUCT UP & PENETRATING FLOOR ABOVE
- RETURN/EXH. AIR DUCT UP & PENETRATING FLOOR ABOVE
- ROUND DUCT UP & PENETRATING FLOOR ABOVE

DOUBLE LINE / SINGLE LINE

- VD — VOLUME DAMPER
- FSD — FIRE SMOKE DAMPER
- BDD — BACKDRAFT DAMPER
- FD — FIRE DAMPER
- SD — SMOKE DAMPER
- ACD — AUTOMATIC CONTROL DAMPER (ELECTRIC OR PNEUMATIC)
- MD — MOTORIZED DAMPER
- H — DUCT MOUNTED HUMIDIFIER

DOUBLE LINE / SINGLE LINE

- FLEXIBLE DUCT
- FLEXIBLE CONNECTION
- BREAK &/OR CONTINUATION (RECT.)
- BREAK &/OR CONTINUATION (ROUND)
- EXISTING DUCTWORK AND EQUIPMENT TO REMAIN
- EXISTING DUCTWORK AND/OR EQUIP. TO BE REMOVED
- CONCENTRIC REDUCER
- ECCENTRIC REDUCER
- RECTANGULAR TO ROUND TRANSITION

DOUBLE LINE / SINGLE LINE

- DUCT W/ 1" ACOUSTICAL LINER
- UP / DN — (RECT.)
- VERTICAL OFFSET UP OR DOWN (ARROW INDICATES DIRECTION OF FLOW)
- UP / DN — (ROUND)
- DUCT REMOVED AND HOLE CAPPED/BLANKED OFF
- HORIZONTAL OFFSET

DOUBLE LINE / SINGLE LINE

- SMOOTH RADIUS ELBOW
- ELBOW W/ TURNING VANES
- TRUNK TEE
- SQUARE BULLHEAD TEE W/TURNING VANES

DOUBLE LINE / SINGLE LINE

- 90° BRANCH TAKE-OFF
- 90° BRANCH TAKE-OFF (RECT. TO ROUND)
- 90° BRANCH TAKE-OFF (BELLMOUTH)
- 45° BRANCH TAKE-OFF (RECTANGULAR)
- 45° BRANCH TAKE-OFF (ROUND)

SHEETMETAL SYMBOLS CONT.

DOUBLE LINE / SINGLE LINE

- LINEAR SIDEWALL DIFFUSER (W/SHEET METAL CONNECTION PLENUM W/1" LINING & BRANCH FOR EVERY 4' OF LINEAR.)
- LINEAR SIDEWALL DIFFUSER (W/SHEET METAL CONNECTION PLENUM W/1" LINING & BRANCH FOR EVERY 4' OF LINEAR.) — BOOT BY LD MFG'R
- SIDEWALL DUCT MTD. REG./GRILLE

PIPING SYMBOLS

- SUPPLY PIPING (TYP.)
- RETURN PIPING (TYP.)
- PUMPED CONDENSATE PIPING
- DRAIN PIPING
- BALL VALVE W/HOSE BIBB END, BRONZE CAP AND CHAIN
- GLOBE VALVE
- BALANCING VALVE
- ANGLE GLOBE VALVE
- BALL VALVE
- PRESSURE REDUCING VALVE
- HORIZONTAL CHECK VALVE
- 2-WAY CONTROL VALVE
- 3-WAY CONTROL VALVE
- BUTTERFLY VALVE
- QUICK CLOSING VALVE W/ FUSIBLE LINK
- SELF CONTAINED RADIATION VALVE
- "Y" STRAINER
- "Y" STRAINER W/ BLOW DOWN
- GATE VALVE
- GATE VALVE W/ HOSE BIBB END, BRONZE CAP & CHAIN
- PRESSURE REDUCING VALVE
- EXPANSION JOINT
- PRESSURE RELIEF VALVE
- DIRECTION OF FLOW
- PIPE DROP
- PIPE RISE/DROP
- PIPE RISE/DROP PENETRATION
- BRANCH CONNECTION
- BOTTOM CONNECTION 45° OR 90°
- CAPPED PIPE
- GRAPHIC BREAK &/OR CONTINUATION
- UNION
- FLEX PIPE CONNECTOR
- AV — AIR VENT (AUTOMATIC)
- MV — AIR VENT (MANUAL)
- FS — FLOW SWITCH
- PS — PRESSURE SWITCH

PIPING SYMBOLS CONT.

- THERMOMETER
- TW — THERMOMETER WELL
- PT — PRESS./ TEMP. TAP (PETE'S PLUG)
- PRESSURE GAUGE
- PRESSURE GAUGE W/ COIL SYPHON
- PRESSURE GAUGE W/ DAMPENER
- IN LINE PUMP
- BASKET STRAINER
- B — BUCKET TRAP
- THERMOSTATIC TRAP
- FLOAT & THERMOSTATIC TRAP & VALVE TRAIN
- DIRT LEG
- UP/DN — PITCH UP/DOWN IN DIRECTION OF ARROW
- PIPE GUIDE
- PIPE ANCHOR
- FLANGES
- RPBP — REDUCED PRESSURE BACKFLOW PREVENTER
- CLEAN-OUT FOR CONDENSATE DRAIN

GENERAL SYMBOLS

- 1 — REVISION NUMBER
- T — THERMOSTAT
- H — HUMIDISTAT (MOUNT 54" AFF)
- S — SPEED SWITCH
- SD — SMOKE DETECTOR
- RS — REMOTE SENSOR
- CONNECT TO EXISTING
- EXTENT OF REMOVAL
- DUCT SMOKE
- SUPPLY AIR ARROW
- RETURN/EXHAUST AIR ARROW
- UC — UNDERCUT DOOR
- DL — DOOR LOUVER

- - / XXX — DENOTES EQUIPMENT NOT REQUIRING ELECTRICAL INPUT
- UNIT # — DENOTES EQUIPMENT REQUIRING ELECTRICAL INPUT
- # — DENOTES EQUIPMENT REQUIRING ELECTRICAL INPUT
- DENOTES HVAC DUCTWORK RISER
- # — DENOTES CONTROL DEVICES

AIR DISTRIBUTION DEVICE

- (2) X / XXX — (QUANTITY) TYPE / FLOW RATE (CFM)
- VAV BOX
- 1 — DESIGNATION NUMBER
- SIZE — VAV-6 — SIZE
- MAX. CFM — 250 — MAXIMUM CFM
- MIN. CFM — 150 — MINIMUM CFM
- GPM — 1.0 — FLOW RATE

NOTE: NOT ALL SYMBOLS MAY BE APPLICABLE TO THIS PROJECT.

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: **S. BIRKOK**
CHECKED BY: **D. NEWMAN**
NOT TO SCALE

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

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PROJECT TITLE:
NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR

TOWN: **BERLIN**

DRAWING TITLE: **HYDRONIC SNOW MELT LEGEND**

PROJECT NO. **170-3155**
DRAWING NO. **FSM-002**
SHEET NO. **01.13.017**

FLOW BALANCE WEST				
MANIFOLD/ZONE	NO. OF CIRCUITS	FLOW RATE (GPM)	PRESSURE DROP (FT H_2O)	AREA (FT^2)
WM-1	8	27.5	10.9	849
WM-2	5	16.6	16.7	513
WM-3	5	16.7	17	517

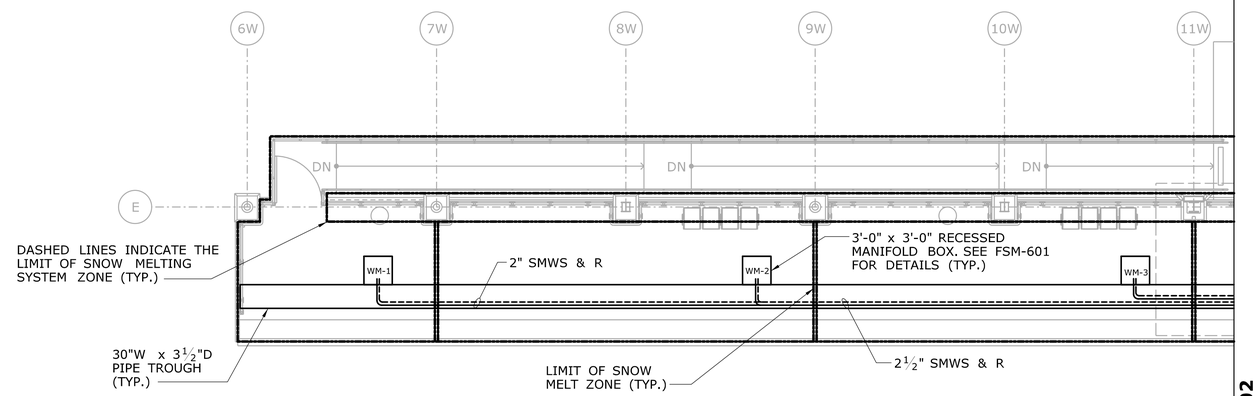
FLOW BALANCE EAST				
MANIFOLD/ZONE	NO. OF CIRCUITS	FLOW RATE (GPM)	PRESSURE DROP (FT H_2O)	AREA (FT^2)
EM-1	11	37.25	19.1	1,152
EM-2	4	16.33	29.4	505
EM-3	4	13.71	27.9	424
EM-4	3	12.29	29.7	380
EM-5	3	12.29	29.7	380

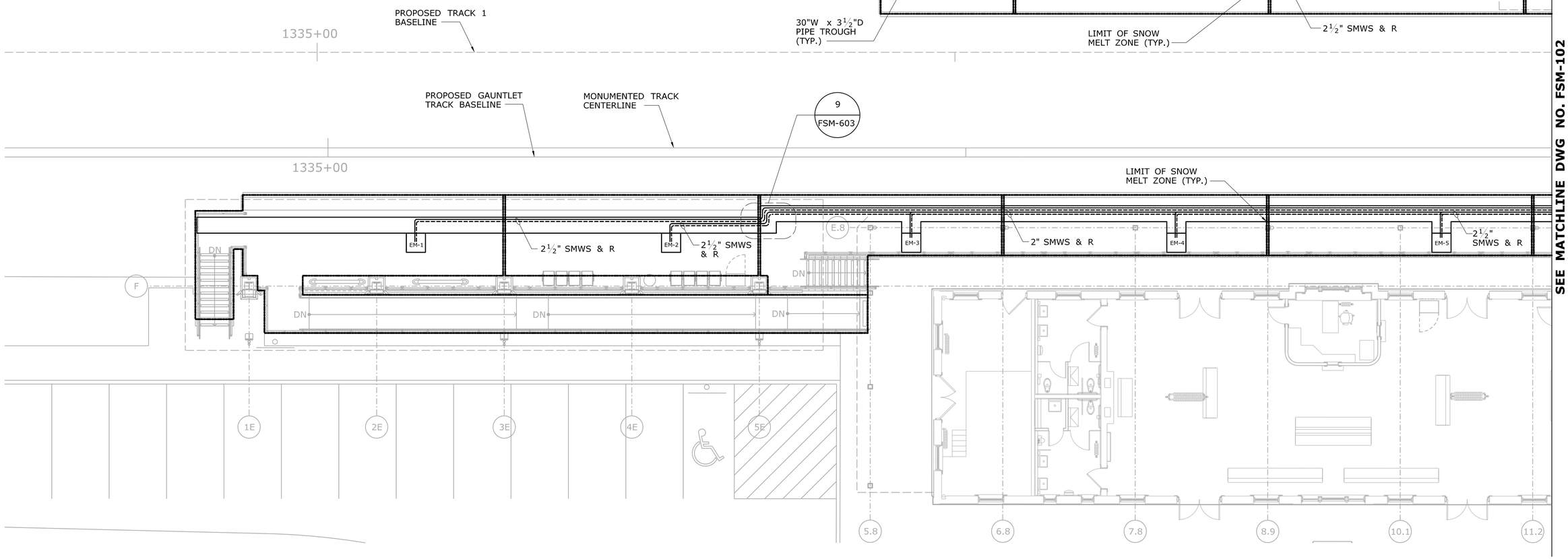
NOTES:

1. REFER TO STRUCTURAL DRAWINGS FOR MANIFOLD BOX AND PIPE TROUGH DETAILS.
2. REFER TO FSM-105 FOR TYPICAL SNOW MELT ZONE LAYOUT.
3. REFER TO PLUMBING DRAWINGS FOR SNOW MELT PIPING COORDINATION WITH TRENCH DRAINS.
4. COORDINATE ALL WORK WITH PLUMBING CONTRACTOR PRIOR TO ANY WORK.
5. COORDINATE TROUGH AND MANIFOLD LOCATIONS WITH ARCHITECTURAL AND STRUCTURAL DRAWINGS.

LEGEND:

- SNOW MELT WATER SUPPLY
- SNOW MELT WATER RETURN
- LIMITS OF SNOW MELT SYSTEM





SEE MATCHLINE DWG NO. FSM-102

MANIFOLD AND DISTRIBUTION PIPING PLAN - PART A

SCALE: 1/8" = 1'-0"

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: S. BIRKOK
CHECKED BY: D. NEWMAN
SCALE: 1/8" = 1'-0"

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

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400 Blue Hill Drive
Westwood, MA 02090

PROJECT TITLE:
NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR

TOWN: BERLIN

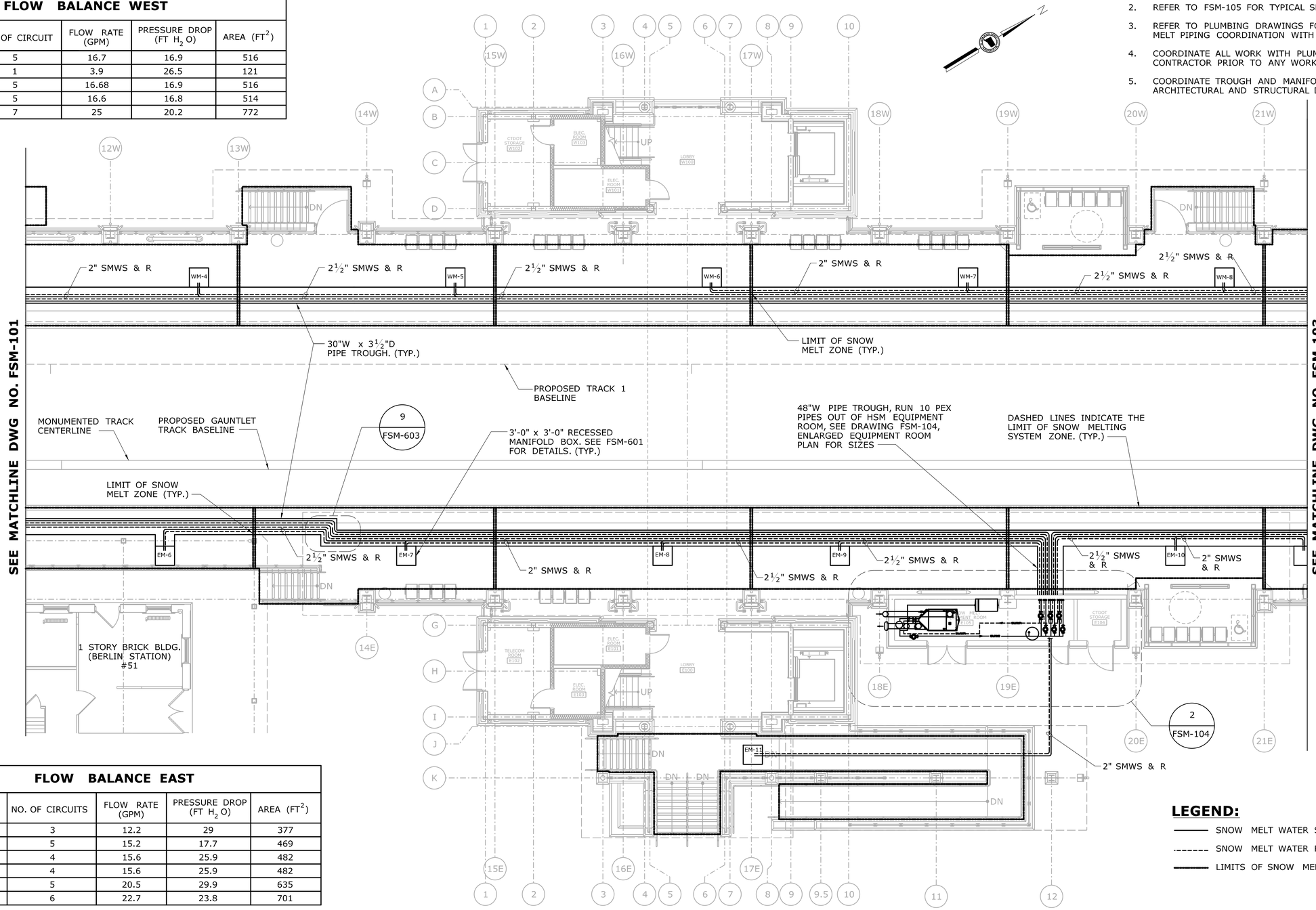
DRAWING TITLE:
HYDRONIC SNOW MELT PLATFORM PLAN PART A

PROJECT NO. 170-3155
DRAWING NO. FSM-101
SHEET NO. 01.13.018

FLOW BALANCE WEST				
MANIFOLD/ZONE	NO. OF CIRCUIT	FLOW RATE (GPM)	PRESSURE DROP (FT H_2O)	AREA (FT^2)
WM-4	5	16.7	16.9	516
WM-5	1	3.9	26.5	121
WM-6	5	16.68	16.9	516
WM-7	5	16.6	16.8	514
WM-8	7	25	20.2	772

NOTES:

1. REFER TO STRUCTURAL DRAWINGS FOR MANIFOLD BOX AND PIPE TROUGH DETAILS.
2. REFER TO FSM-105 FOR TYPICAL SNOW MELT ZONE LAYOUT.
3. REFER TO PLUMBING DRAWINGS FOR SNOW MELT PIPING COORDINATION WITH TRENCH DRAINS.
4. COORDINATE ALL WORK WITH PLUMBING CONTRACTOR PRIOR TO ANY WORK.
5. COORDINATE TROUGH AND MANIFOLD LOCATIONS WITH ARCHITECTURAL AND STRUCTURAL DRAWINGS.



FLOW BALANCE EAST				
MANIFOLD ZONE	NO. OF CIRCUITS	FLOW RATE (GPM)	PRESSURE DROP (FT H_2O)	AREA (FT^2)
EM-6	3	12.2	29	377
EM-7	5	15.2	17.7	469
EM-8	4	15.6	25.9	482
EM-9	4	15.6	25.9	482
EM-10	5	20.5	29.9	635
EM-11	6	22.7	23.8	701

LEGEND:

- SNOW MELT WATER SUPPLY
- SNOW MELT WATER RETURN
- LIMITS OF SNOW MELT SYSTEM

MANIFOLD AND DISTRIBUTION PIPING PLAN - PART B

SCALE: 1/8" = 1'-0"

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: S. STRAUS
CHECKED BY: D. NEWMAN
SCALE: 1/8" = 1'-0"

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

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PROJECT TITLE:
NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR

TOWN: BERLIN

DRAWING TITLE:
HYDRONIC SNOW MELT PLATFORM PLAN PART B

PROJECT NO. 170-3155
DRAWING NO. FSM-102
SHEET NO. 01.13.019

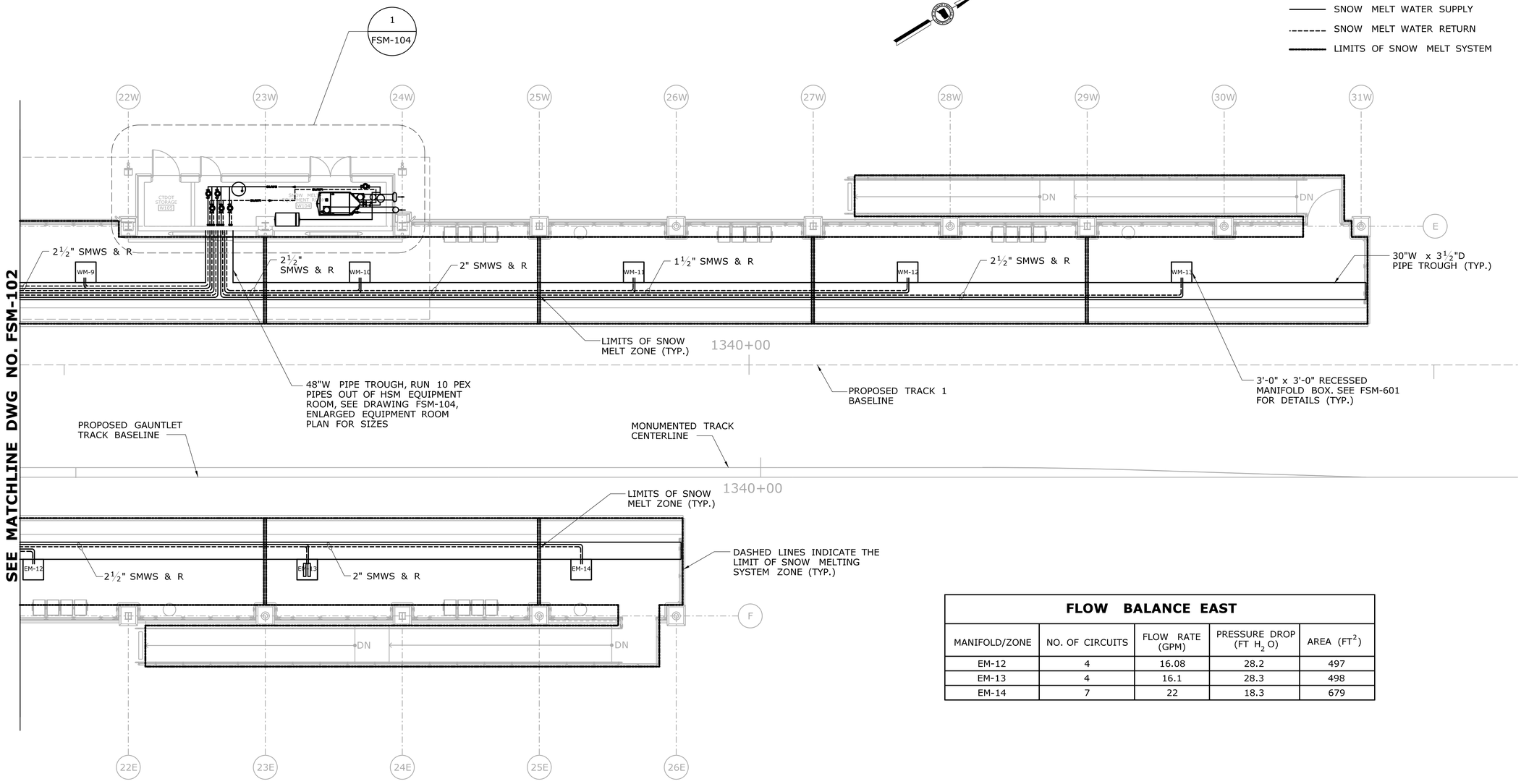
FLOW BALANCE WEST				
MANIFOLD/ZONE	NO. OF CIRCUITS	FLOW RATE (GPM)	PRESSURE DROP (FT H_2O)	AREA (FT^2)
WM-9	5	16.7	17.1	517
WM-10	5	16.6	16.8	515
WM-11	5	16.6	16.8	514
WM-12	5	16.6	16.8	514
WM-13	9	30.5	17.9	942

NOTES:

1. REFER TO STRUCTURAL DRAWINGS FOR MANIFOLD BOX AND PIPE TROUGH DETAILS.
2. REFER TO FSM-105 FOR TYPICAL SNOW MELT ZONE LAYOUT.
3. REFER TO PLUMBING DRAWINGS FOR SNOW MELT PIPING COORDINATION WITH TRENCH DRAINS.
4. COORDINATE ALL WORK WITH PLUMBING CONTRACTOR PRIOR TO ANY WORK.
5. COORDINATE TROUGH AND MANIFOLD LOCATIONS WITH ARCHITECTURAL AND STRUCTURAL DRAWINGS.

LEGEND:

- SNOW MELT WATER SUPPLY
- SNOW MELT WATER RETURN
- LIMITS OF SNOW MELT SYSTEM



FLOW BALANCE EAST				
MANIFOLD/ZONE	NO. OF CIRCUITS	FLOW RATE (GPM)	PRESSURE DROP (FT H_2O)	AREA (FT^2)
EM-12	4	16.08	28.2	497
EM-13	4	16.1	28.3	498
EM-14	7	22	18.3	679

MANIFOLD AND DISTRIBUTION PIPING PLAN - PART C

SCALE: 1/8" = 1'-0"

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: S. BIRKOK
CHECKED BY: D. NEWMAN
SCALE: 1/8" = 1'-0"

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA..CGR..CPS..0170-2296..007_..04..FSM...103.dgn

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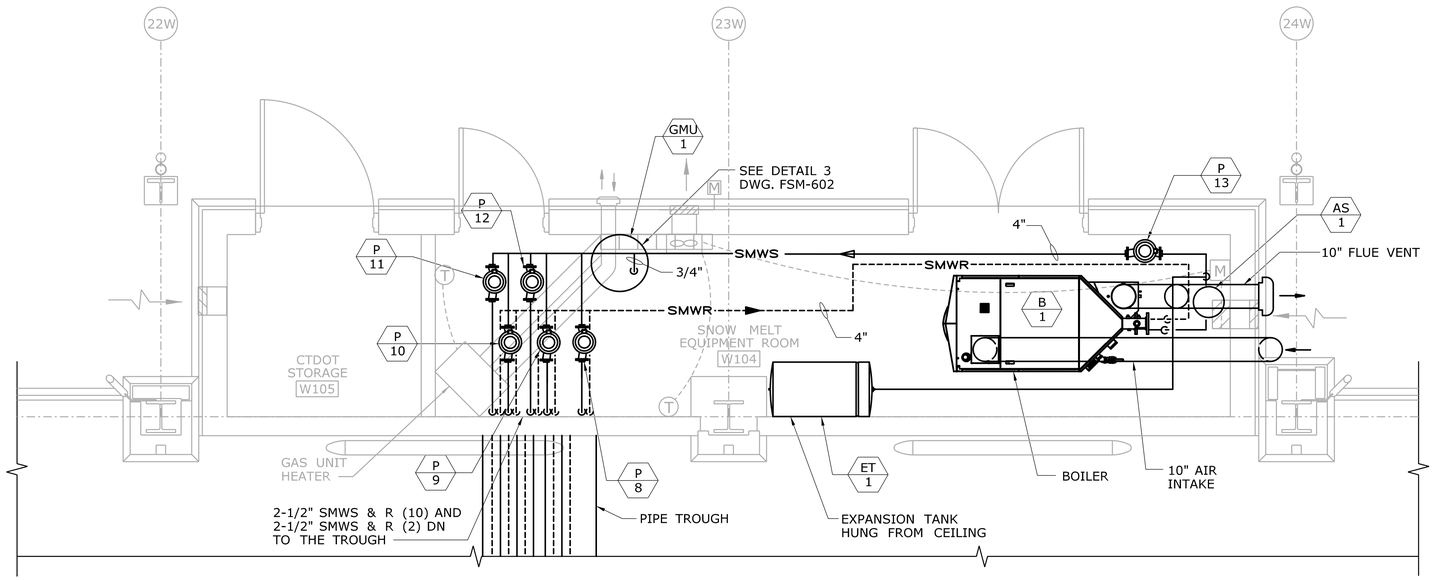
PROJECT TITLE:
NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR

TOWN: BERLIN

DRAWING TITLE:
HYDRONIC SNOW MELT PLATFORM PLAN PART C

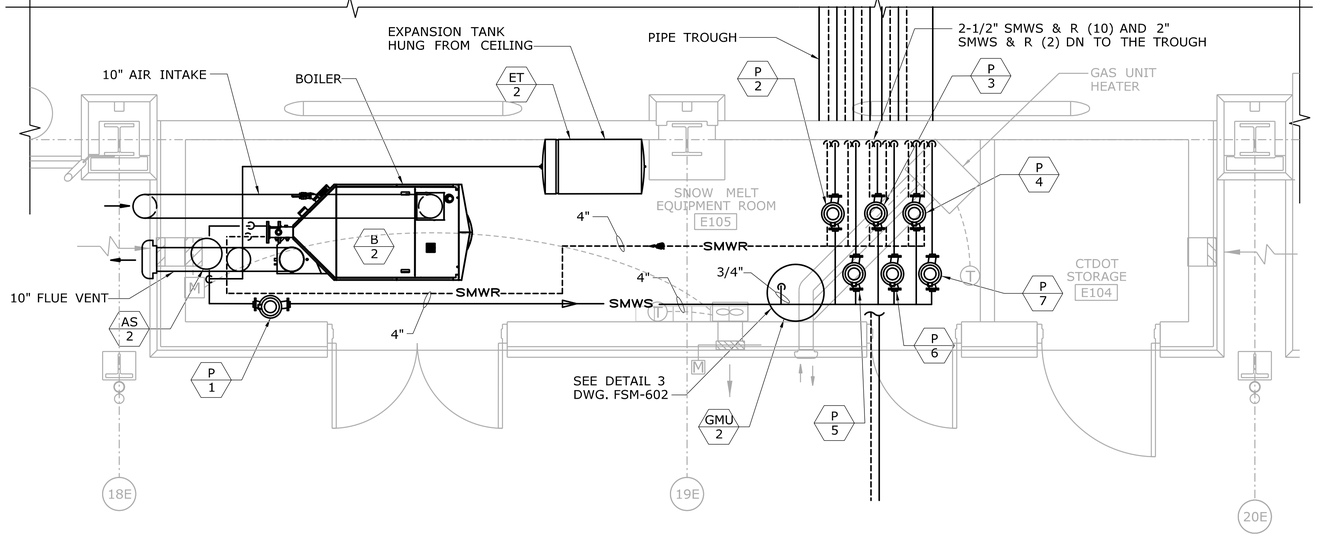
PROJECT NO. 170-3155
DRAWING NO. FSM-103
SHEET NO. 01.13.020



1 / **FSM-103**

WEST SNOW MELT EQUIPMENT ROOM PLAN

SCALE: $\frac{3}{8}$"=1'-0"



2 / **FSM-102**

EAST SNOW MELT EQUIPMENT ROOM PLAN

SCALE: $\frac{3}{8}$"=1'-0"

MECHANICAL NOTES:

1. COORDINATE ALL WORK WITH OTHER TRADES PRIOR TO ANY WORK.
2. PROVIDE NECESSARY CLEARANCES REQUIRED BY MANUFACTURER.
3. SEE PIPING DIAGRAM FOR MORE COMPONENTS AND SIZING.
4. COORDINATE TROUGH AND MANIFOLD LOCATIONS WITH ARCHITECTURAL AND STRUCTURAL DRAWINGS.
5. SEE DETAIL 4 ON DWG 602 FOR MAKE-UP WATER CONNECTION.

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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-	-	-	-
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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: **S. BIRKOK**

CHECKED BY: **D. NEWMAN**

SCALE: $\frac{3}{8}$" = 1'-0"

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296_007_-_04_FSM_-_104.dgn

SIGNATURE/ BLOCK:

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Suite 100, North Lobby
400 Blue Hill Drive
Westwood, MA 02090

PROJECT TITLE:
NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR

TOWN: **BERLIN**

DRAWING TITLE: **HYDRONIC SNOW MELT EQUIPMENT ROOMS**

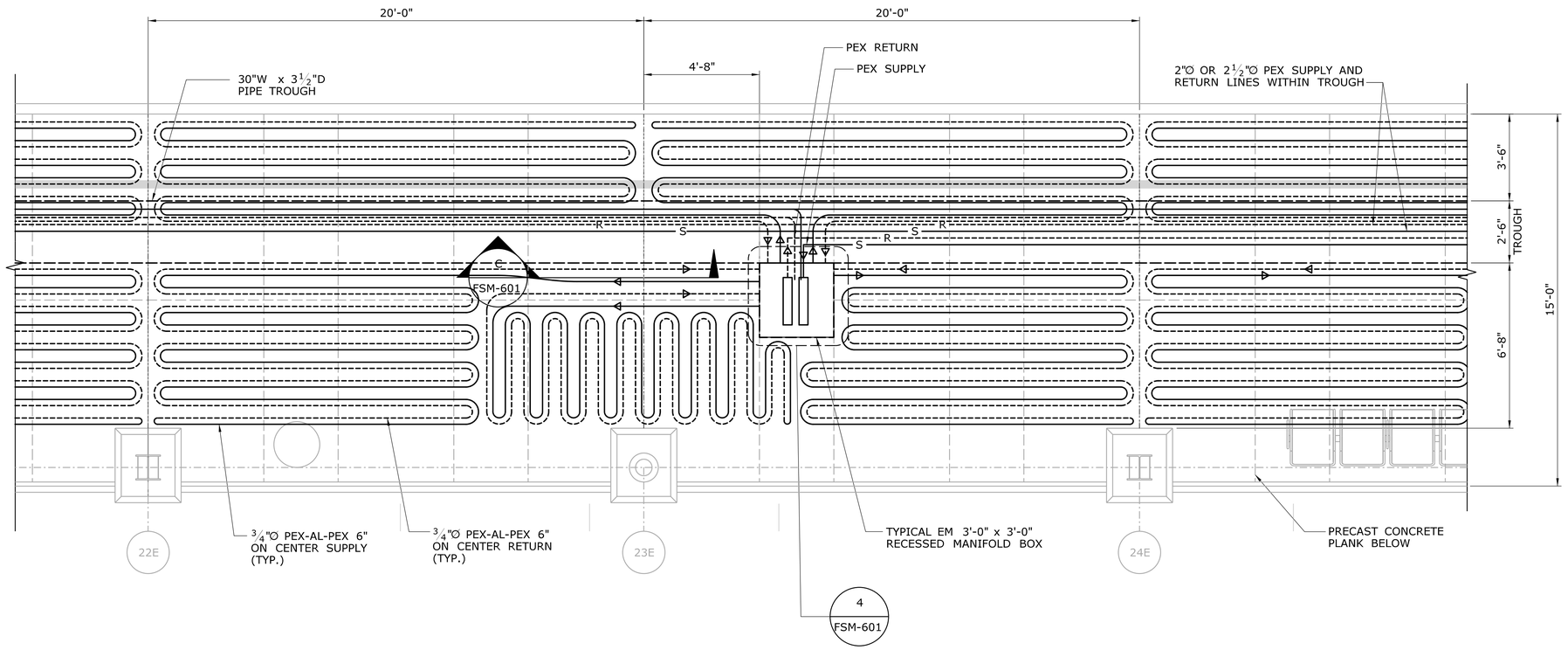
PROJECT NO. **170-3155**

DRAWING NO. **FSM-104**

SHEET NO. **01.13.021**

NOTES:

1. REFER TO STRUCTURAL DRAWINGS FOR MANIFOLD BOX LOCATION AND PIPE TROUGH DETAILS.
2. REFER TO FSM-101 TROUGH FSM-103 FOR MANIFOLD BOX ARRANGEMENT.
3. COORDINATE HSM PIPING WITH PLATFORM MOUNTED EQUIPMENT.
4. PROVIDE PVC SLEEVE FOR PIPING PASSING THROUGH CONTROL JOINTS, (TYPICAL FOR ALL PIPING).
5. ALL ZONES SHALL HAVE REVERSE RETURN PIPING.



3 / - **TYPICAL SNOW MELT ZONE**
SCALE: ⅜" = 1'-0"

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 2/26/2014

DESIGNER/DRAFTER: S. BIRKOK
CHECKED BY: D. NEWMAN
SCALE: ⅜" = 1'-0"

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296_007_-_04_FSM_-_105.dgn

SIGNATURE/ BLOCK:

STATE OF CONNECTICUT
DAVID G. NEWMAN
No. 29278
LICENSED PROFESSIONAL ENGINEER

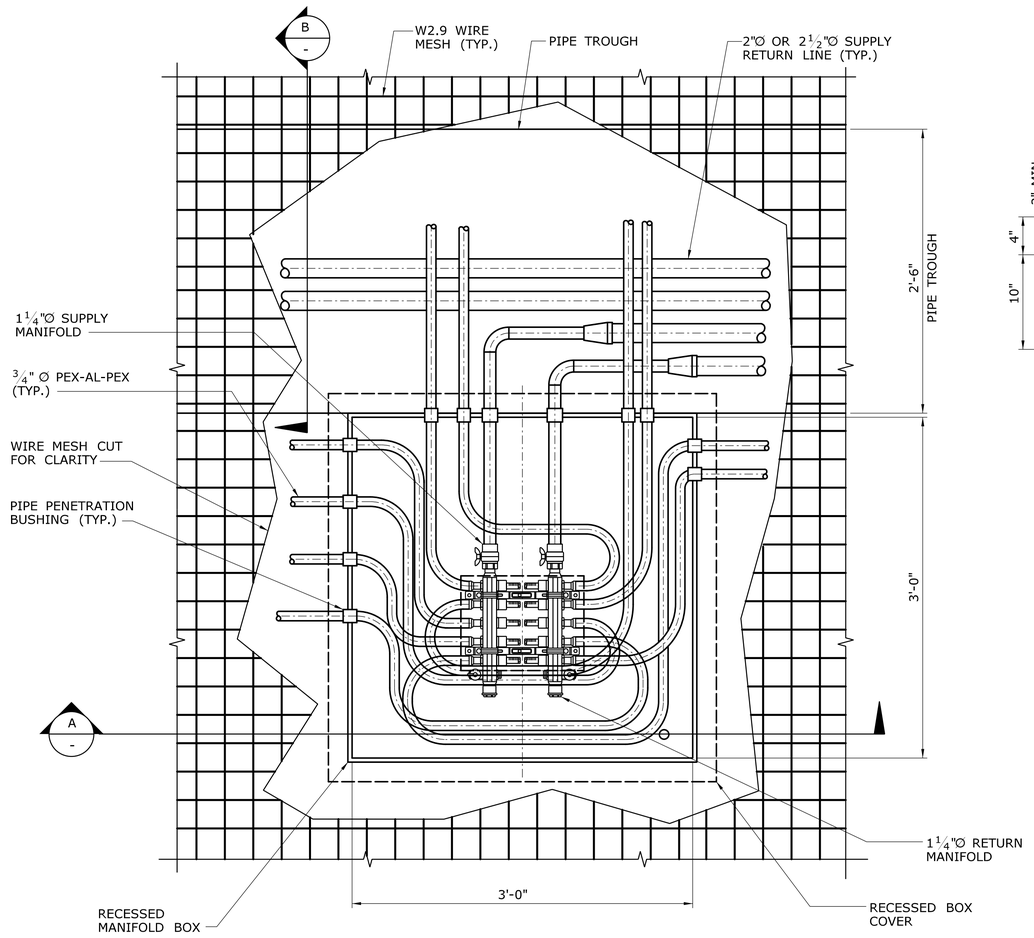
Hatch Mott MacDonald
Suite 100, North Lobby
400 Blue Hill Drive
Westwood, MA 02090

PROJECT TITLE:
NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR

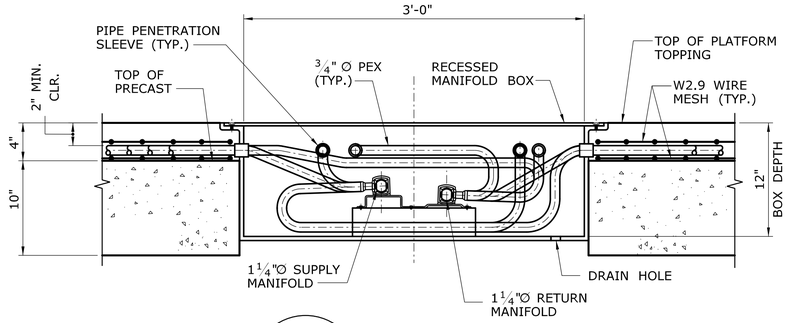
TOWN: **BERLIN**

DRAWING TITLE:
HYDRONIC SNOW MELT SNOW MELT ZONE PLAN

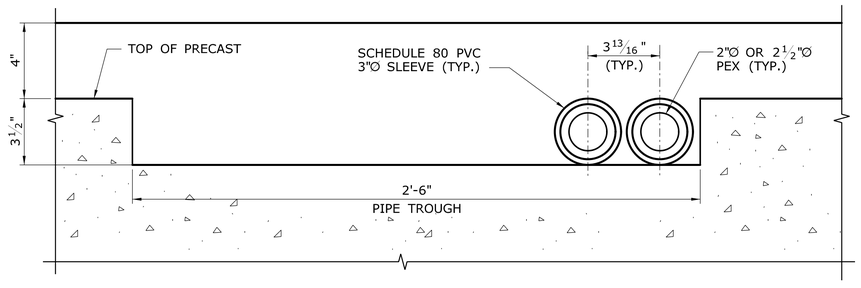
PROJECT NO. **170-3155**
DRAWING NO. **FSM-105**
SHEET NO. **01.13.022**



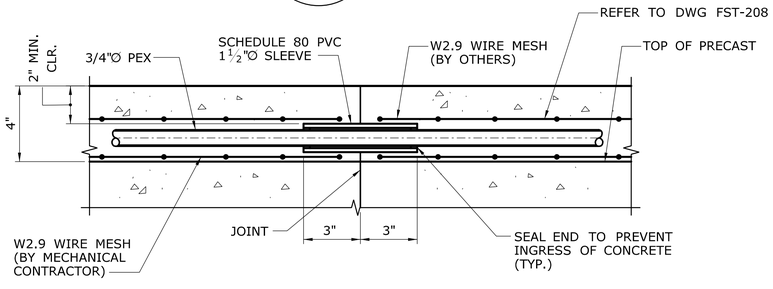
1 / FSM-105 — **MANIFOLD RECESSED BOX DETAIL**
SCALE: 1 1/2" = 1'-0"



A / FSM-601 — **SECTION**
SCALE: 1 1/2" = 1'-0"



B / FSM-601 — **SECTION**
SCALE: 3" = 1'-0"



C / FSM-105 — **SECTION AT CONTROL JOINTS**
SCALE: 3" = 1'-0"

NOTE:

1. MANIFOLD BOX OPENINGS SHALL BE FIELD COORDINATED WITH PIPING LAYOUT FOR EACH HEATING ZONE.

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

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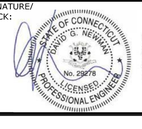
Plotted Date: 2/26/2014

DESIGNER/DRAFTER: S. BIRKOK
CHECKED BY: D. NEWMAN
SCALE AS NOTED

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296_007_-_04_FSM_-_601.dgn

SIGNATURE/ BLOCK:



Hatch Mott MacDonald
Suite 100, North Lobby
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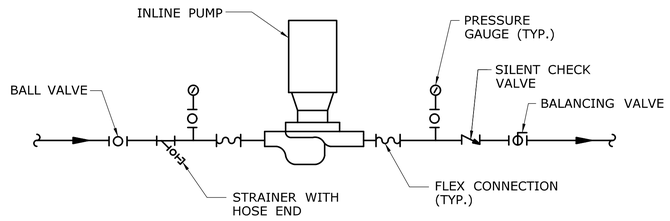
PROJECT TITLE: NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR

TOWN: BERLIN

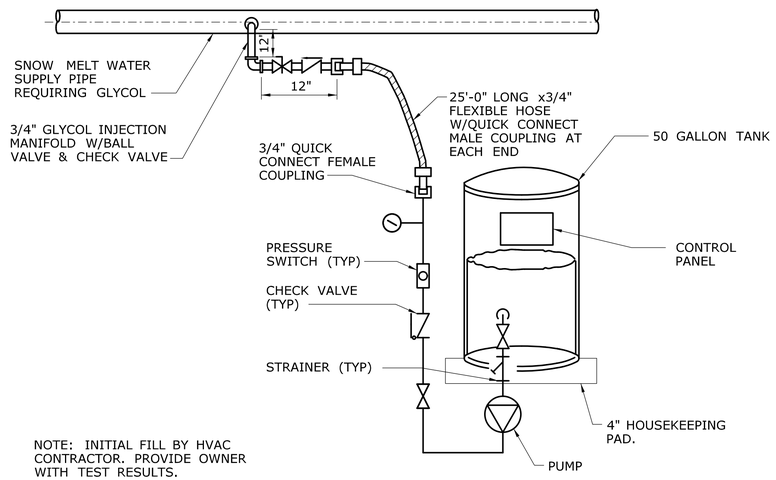
DRAWING TITLE: HYDRONIC SNOW MELT DETAILS SHT. 1 OF 3

PROJECT NO. 170-3155
DRAWING NO. FSM-601
SHEET NO. 01.13.023



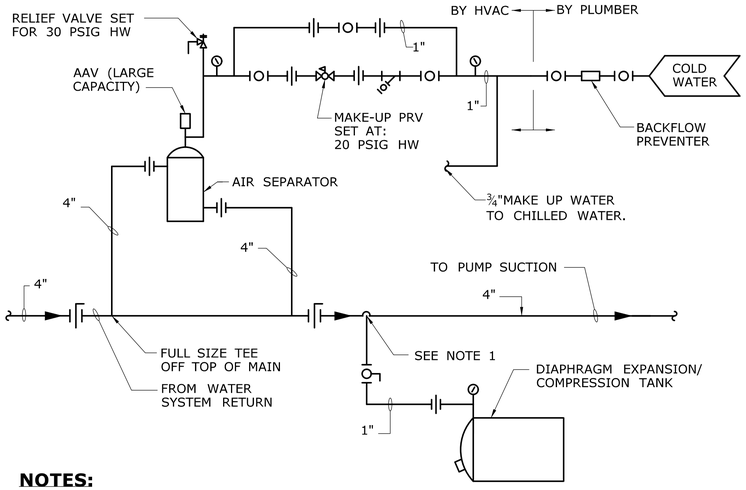
NOTES:
1. VALVES SHALL BE SAME SIZE AS PIPE, REDUCE AS REQUIRED TO PUMP CONNECTIONS.
2. SUBSTITUTE BUTTERFLY VALVES FOR BALL VALVES FOR PIPING GREATER THAN 2".

2 - INLINE PUMP PIPING (EACH PUMP)
NTS



NOTE: INITIAL FILL BY HVAC CONTRACTOR. PROVIDE OWNER WITH TEST RESULTS.

3 - GLYCOL FEEDER DETAIL
NTS



NOTES:
1. CONNECT TO SIDE OF MAIN TO PREVENT AIR OR DEBRIS FROM ENTERING PIPE TO TANK. TOP OR BOTTOM CONNECTION NOT PERMITTED.

4 - MAKE-UP WATER DIAGRAM EXPANSION TANK & AIR SEPARATOR FOR CLOSED LOOP WATER SYSTEM
NTS

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: S. BIRKOK
CHECKED BY: D. NEWMAN
NOT TO SCALE

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296_007_-04_FSM_-602.dgn

SIGNATURE/ BLOCK:
STATE OF CONNECTICUT DONALD G. NEWMAN No. 29878 LICENSED PROFESSIONAL ENGINEER

Hatch Mott MacDonald
Suite 100, North Lobby
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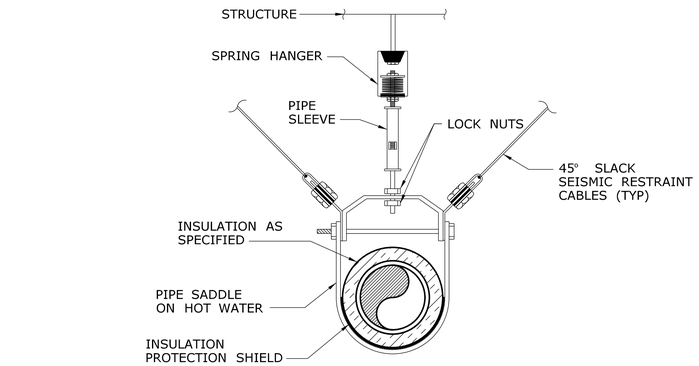
Westwood, MA 02090

PROJECT TITLE:
NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR

TOWN: **BERLIN**

DRAWING TITLE: **HYDRONIC SNOW MELT DETAILS SHEET 2 OF 3**

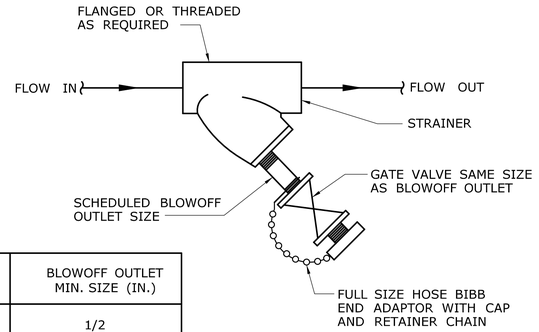
PROJECT NO. **170-3155**
DRAWING NO. **FSM-602**
SHEET NO. **01.13.024**



NOTE:

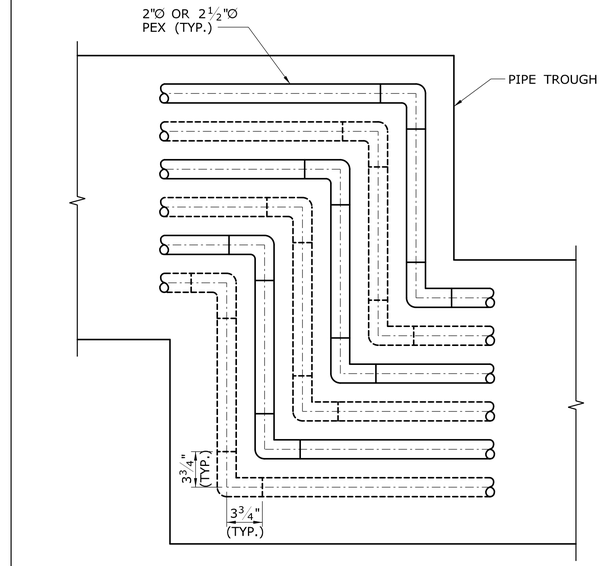
1. FOR TYPE OF HANGER AND INSULATION REQUIREMENTS REFER TO SPECIFICATIONS.

5 / - PIPE HANGER DETAIL
NTS

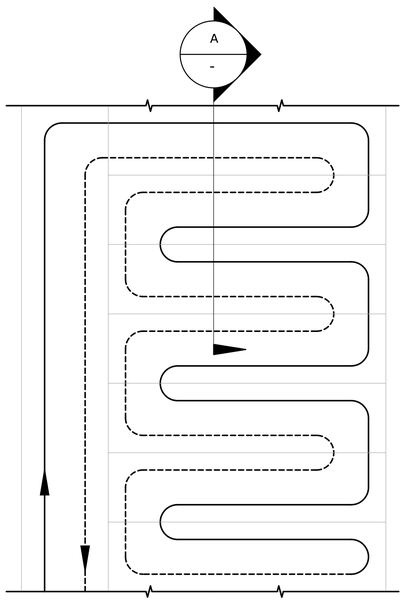


STRAINER SIZE (IN.)	BLOWOFF OUTLET MIN. SIZE (IN.)
3/4	1/2
1 TO 2 1/2	3/4
3 & 4	1

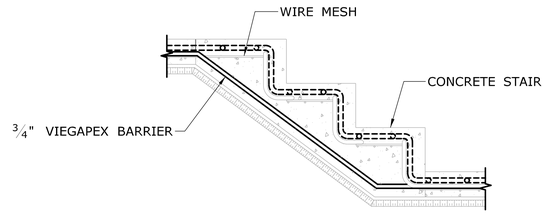
6 / - STRAINER ASSEMBLY
NTS



9 / FSM-102 PIPE TROUGH TRANSITION
NTS



7 / - REVERSE-RETURN PATTERN CONCRETE STAIR INSTALLATION - PLAN VIEW
NTS



NOTE:

1. COORDINATE PIPING WITH STAIR ANCHORS LOCATION AND CONSTRUCTION PRIOR TO ANY WORK. REFER TO ARCHITECTURAL AND STRUCTURAL DRAWINGS.

A / - SECTION THROUGH CONCRETE STAIR WITH TUBING EMBEDDED
NTS

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: S. BIRKOK
CHECKED BY: D. NEWMAN
NOT TO SCALE

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296_007_04_FSM_603.dgn

SIGNATURE/ BLOCK:

STATE OF CONNECTICUT · DONALD G. NEWMAN · No. 29878 · LICENSED PROFESSIONAL ENGINEER

Hatch Mott MacDonald
Suite 100, North Lobby
400 Blue Hill Drive
Westwood, MA 02090

PROJECT TITLE:
NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR

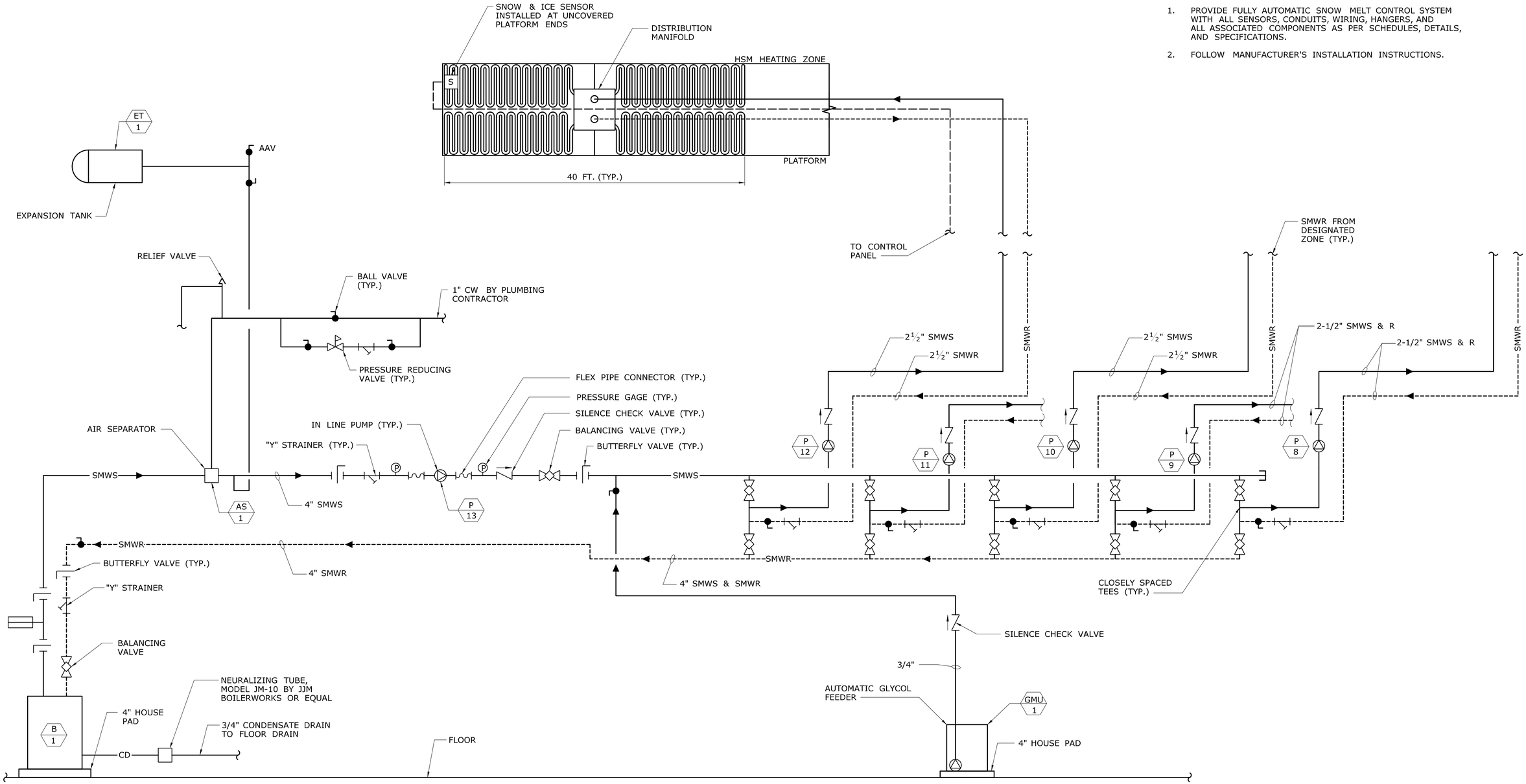
TOWN: BERLIN

DRAWING TITLE:
HYDRONIC SNOW MELT DETAILS SHEET 3 OF 3

PROJECT NO. 170-3155
DRAWING NO. FSM-603
SHEET NO. 01.13.025

NOTES:

1. PROVIDE FULLY AUTOMATIC SNOW MELT CONTROL SYSTEM WITH ALL SENSORS, CONDUITS, WIRING, HANGERS, AND ALL ASSOCIATED COMPONENTS AS PER SCHEDULES, DETAILS, AND SPECIFICATIONS.
2. FOLLOW MANUFACTURER'S INSTALLATION INSTRUCTIONS.



HYDRONIC SNOW MELT EQUIPMENT ROOM PIPING DIAGRAM - WEST

NOT TO SCALE

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: S. BIRKOK
CHECKED BY: D. NEWMAN
NOT TO SCALE

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296_007_-04_FSM_-701.dgn

SIGNATURE/ BLOCK:

STATE OF CONNECTICUT DAVID G. NEWMAN No. 29878 LICENSED PROFESSIONAL ENGINEER

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Suite 100, North Lobby
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PROJECT TITLE:
NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR

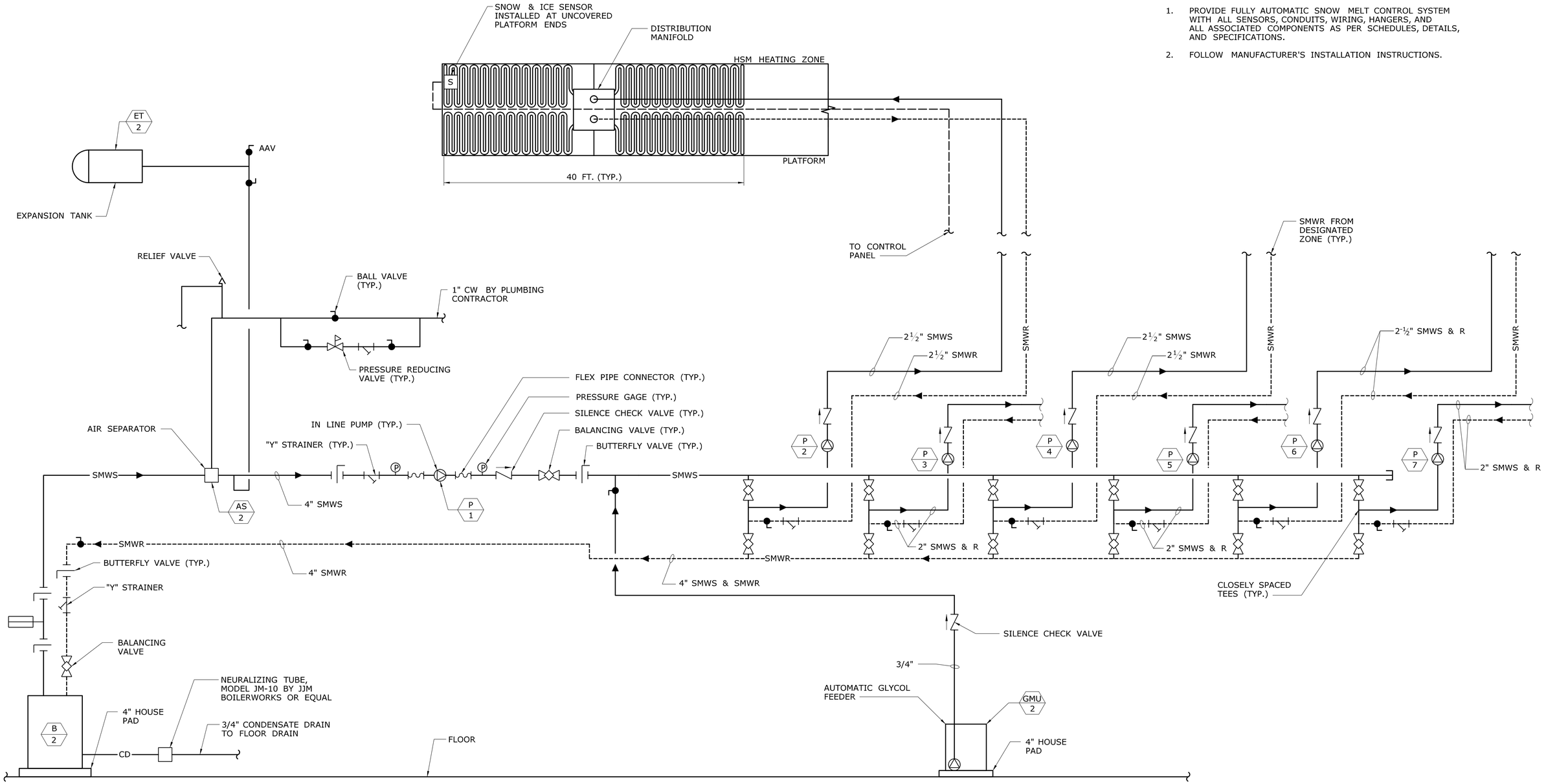
TOWN: **BERLIN**

DRAWING TITLE: **HYDRONIC SNOW MELT PIPING DIAGRAM WEST**

PROJECT NO. **170-3155**
DRAWING NO. **FSM-701**
SHEET NO. **01.13.026**

NOTES:

1. PROVIDE FULLY AUTOMATIC SNOW MELT CONTROL SYSTEM WITH ALL SENSORS, CONDUITS, WIRING, HANGERS, AND ALL ASSOCIATED COMPONENTS AS PER SCHEDULES, DETAILS, AND SPECIFICATIONS.
2. FOLLOW MANUFACTURER'S INSTALLATION INSTRUCTIONS.



HYDRONIC SNOW MELT EQUIPMENT ROOM PIPING DIAGRAM - EAST

NOT TO SCALE

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: S. BIRKOK
CHECKED BY: D. NEWMAN
NOT TO SCALE

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296_007_-_04_FSM_-_702.dgn

SIGNATURE/ BLOCK:

STATE OF CONNECTICUT · DAVID G. NEWMAN · No. 29278 · LICENSED PROFESSIONAL ENGINEER

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Suite 100, North Lobby
400 Blue Hill Drive
Westwood, MA 02090

PROJECT TITLE:
NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR

TOWN: **BERLIN**

DRAWING TITLE: **HYDRONIC SNOW MELT PIPING DIAGRAM EAST**

PROJECT NO. **170-3155**
DRAWING NO. **FSM-702**
SHEET NO. **01.13.027**

PUMP SCHEDULE

DSGNTN	LOCATION	SERVICE	TYPE	GPM	TOTAL HEAD (FT.)	NPSH	MOTOR						MANUFACTURER/MODEL NUMBER	REMARKS
							MAX BHP	HP	RPM	V	PH	HZ		
P-1	SNOW MELT EQUIPMENT ROOM-EAST	BOILER PUMP	INLINE	294	40	4.17	6	7.5	3600	460	3	60	B & G/SERIES 80-5X5X7	(1) (2)
P-2	SNOW MELT EQUIPMENT ROOM-EAST	EM-1	INLINE	38	75	14.8	1.76	2	3600	460	3	60	B & G/SERIES 90-1AAB	(1)
P-3	SNOW MELT EQUIPMENT ROOM-EAST	EM-2,3,4,5	INLINE	57	120	10.04	3.99	5	3600	460	3	60	B & G/SERIES 90-1.25AAB	(1)
P-4	SNOW MELT EQUIPMENT ROOM-EAST	EM-6,7,8,9	INLINE	61	75	11.23	3.32	3	3600	460	3	60	B & G/SERIES 90-1.25AAB	(1)
P-5	SNOW MELT EQUIPMENT ROOM-EAST	EM-10,12	INLINE	37	45	14.8	1.14	1.5	3600	460	3	60	B & G/SERIES 90-1AAB	(1)
P-6	SNOW MELT EQUIPMENT ROOM-EAST	EM-13,14	INLINE	38	55	14.8	1.48	1.5	3600	460	3	60	B & G/SERIES 90-1AAB	(1)
P-7	SNOW MELT EQUIPMENT ROOM-EAST	EM-11	INLINE	23	40	14.8	0.94	1.0	3600	460	3	60	B & G/SERIES 90-1AAB	(1)
P-8	SNOW MELT EQUIPMENT ROOM-WEST	WM-1,2	INLINE	45	73	14.8	2.05	3	3600	460	3	60	B & G/SERIES 90-1AAB	(1)
P-9	SNOW MELT EQUIPMENT ROOM-WEST	WM-3,4,5	INLINE	38	55	14.8	1.48	1.5	3600	460	3	60	B & G/SERIES 90-1AAB	(1)
P-10	SNOW MELT EQUIPMENT ROOM-WEST	WM-6,7,8,9	INLINE	75	85	14.56	4.23	5	3600	460	3	60	B & G/SERIES 90-1.5AAB	(1)
P-11	SNOW MELT EQUIPMENT ROOM-WEST	WM-10,11,12	INLINE	51	49	8.42	1.5	2	3600	460	3	60	B & G/SERIES 90-1.25AAB	(1)
P-12	SNOW MELT EQUIPMENT ROOM-WEST	WM-13	INLINE	31	37	14.8	0.94	1	3600	460	3	60	B & G/SERIES 90-1AAB	(1)
P-13	SNOW MELT EQUIPMENT ROOM-WEST	BOILER PUMP	INLINE	294	40	4.17	6	7.5	3600	460	3	60	B & G SERIES 80/5X5X7	(1) (2)

(1) PROVIDE PREMIUM EFFICIENT MOTORS.
(2) PROVIDE INVERTER DUTY MOTOR AND VFD.

GLYCOL MAKE-UP UNIT SCHEDULE

DSGNTN	LOCATION	TANK SIZE	PUMP HP	V	P	HZ	MANUFACTURER/MODEL NO.	REMARKS
GMU-1	SNOW MELT EQUIPMENT ROOM	50	1/3	120	1	60	NEPTUNE/G-50-1A	(1) (2) (3)
GMU-2	SNOW MELT EQUIPMENT ROOM	50	1/3	120	1	60	NEPTUNE/G-50-1A	(1) (2) (3)

(1) SIMPLEX PUMP SYSTEM.
(2) AUDIBLE ALARM WITH SILENCING RELAY
(3) CONTROL PANEL

BOILER SCHEDULE

ITEM	LOCATION	MFG'R	MODEL	I=B=R		GAS	BURNER MTR (EACH)			EWT	LWT	REMARKS
				MBH	IBR OUT MBH		V	Ø	HZ			
B-1	BOILER ROOM-WEST	LOCHINVAR	FB3000	3,000	2,760	NAT.	120	1	60	150	130	SUPPLY OUTDOOR RESET
B-2	BOILER ROOM-EAST	LOCHINVAR	FB3000	3,000	2,760	NAT.	120	1	60	110	140	SUPPLY OUTDOOR RESET

PROVIDE EACH BOILER WITH PACKAGED CONTROLS, CONCENTRIC VENT KIT, BOILER MANUFACTURER'S NEUTRALIZATION KIT.

EXPANSION TANK SCHEDULE

DESIGNATION	LOCATION	SERVICE	TANK RATING PSI	TANK DIAMETER	TANK HEIGHT	TANK ACCEPT. CAP.	MANUFACTURER/MODEL NUMBER	OPTIONS/REMARKS
ET-1	SNOW MELT EQUIPMENT ROOM-WEST	BOILER SYSTEM	175	24	43-7/8	68.0	BELL & GOSSETT/D-120V	-
ET-2	SNOW MELT EQUIPMENT ROOM-EAST	BOILER SYSTEM	175	24	43-7/8	68.0	BELL & GOSSETT/D-120V	-

VARIABLE FREQUENCY DRIVE SCHEDULE

UNIT NUMBER	LOCATION	SERVICE	UNIT HP	EQUIP TYPE	ELECTRICAL DATA			EMERG. POWER	AIC RATINGS	BY-PASS	MANUFACTURER/ MODEL NUMBER	OPTIONS/REMARKS
					V	*	Hz					
VFD-1	SNOW MELT EQUIPMENT ROOM	P-1	7.5	PUMP	460	3	60	NO	65 K	YES	ABB/ACH550	18 PULSE
VFD-2	SNOW MELT EQUIPMENT ROOM	P-13	7.5	PUMP	460	3	60	NO	65 K	YES	ABB/ACH550	18 PULSE

AIR SEPARATOR SCHEDULE

ITEM	LOCATION	SERVICE	MANUFACTURER / MODEL NUMBER	(CAPACITY) GPM	SIZE		REMARKS
					LENGTH	DIAMETER	
AS-1	MECH. RM.-WEST	HOT WATER SYSTEM	B&G / R-3	300	32	12-3/4	(1)
AS-2	MECH. RM.-EAST	HOT WATER SYSTEM	B&G / R-3	300	18	12-3/4	(1)

(1) PROVIDE INTERNAL STRAINER.

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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-	-	-	-

Plotted Date: 2/26/2014

DESIGNER/DRAFTER: S. STRAUS
CHECKED BY: D. NEWMAN
NOT TO SCALE

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296_007_-_04_FSM_-_801.dgn

SIGNATURE/ BLOCK:

STATE OF CONNECTICUT — DANIEL G. NEWMAN — No. 29878 — LICENSED PROFESSIONAL ENGINEER

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Suite 100, North Lobby
400 Blue Hill Drive
Westwood, MA 02090

PROJECT TITLE: NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR

TOWN: BERLIN

DRAWING TITLE: HYDRONIC SNOW MELT SCHEDULES

PROJECT NO. 170-3155
DRAWING NO. FSM-801
SHEET NO. 01.13.028

GENERAL NOTES:

1. ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE, NATIONAL ELECTRIC SAFETY CODE, NFPA, OSHA REGULATIONS AND ALL OTHER EXISTING CODES AND REGULATIONS OF AUTHORITIES HAVING JURISDICTION.

2. THE CONTRACT DRAWINGS ARE DIAGRAMMATIC IN NATURE AND NOT EVERY DETAIL OR CONDUIT IS SHOWN. EXISTING CONDITIONS AND DIMENSIONS SHALL BE VERIFIED IN THE FIELD BEFORE COMMENCING ANY FABRICATION, ORDERING ANY MATERIAL, OR PERFORMING ANY WORK. ANY DEPARTURE FROM CONCEPT SHOWN ON THE CONTRACT DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. ALL ELECTRICAL EQUIPMENT SHOWN ON THE DRAWINGS AND/OR REQUIRED FOR THE FULL INTEGRITY OF THE CONTRACT SHALL BE FURNISHED, INSTALLED AND CONNECTED BY THE CONTRACTOR, EXCEPT WHERE EQUIPMENT SHOWN IS IDENTIFIED AS "EXISTING" OR OTHERWISE NOTED ON THE DRAWINGS.

3. UNLESS OTHERWISE NOTED, EQUIPMENT AND MATERIALS TO BE PROVIDED SHALL BEAR LISTING AND LABELING BY A NATIONALLY RECOGNIZED TESTING AGENCY WHERE SUCH STANDARD HAD BEEN ESTABLISHED FOR THAT TYPE OF EQUIPMENT/MATERIAL.

4. THE CONTRACTOR SHALL SUBMIT DETAILED EQUIPMENT LAYOUT PLANS, SECTIONS, AND MOUNTING DETAILS SHOWING PROPOSED LOCATION OF ALL EQUIPMENT AND REQUIRED WORKING/SERVICE CLEARANCES PRIOR TO INSTALLATION.

5. CONTRACTOR SHALL VISIT THE PROJECT SITE AND EXAMINE AND CONFIRM EXISTING CONDITIONS. ALL CHANGES SHALL BE PRESENTED DURING SHOP DRAWING SUBMITTALS FOR ENGINEER'S APPROVAL.

6. CONDUITS SHALL CONTAIN AN INSULATED GROUND WIRE BONDED TO ENCLOSURES AND SIZED IN ACCORDANCE WITH THE REQUIREMENTS OF NEC, IF SIZE IS NOT SHOWN ON THE CONTRACT DRAWINGS.

7. THE CONTRACTOR SHALL PROVIDE CONDUIT FITTINGS, CONNECTORS, CLAMPS, HARDWARE, HANGERS, AND SUPPORTS AS NECESSARY FOR A COMPLETE INSTALLATION.

8. THE CONTRACTOR SHALL PROVIDE TAGS FOR EQUIPMENT, CONDUITS, AND CABLES THAT ARE INSTALLED UNDER THIS CONTRACT. TAG IDENTIFICATIONS SHALL BE IN ACCORDANCE WITH CONTRACT DRAWINGS. TAGS FOR CONDUITS SHALL BE AS DESCRIBED IN SPECIFICATIONS.

9. UNUSED OPENINGS IN CONDUITS, BOXES, DISCONNECT SWITCHES, CABINETS, AND PANEL BOARDS SHALL BE CAPPED OR PLUGGED.

10. PROVIDE ALL NECESSARY TEMPORARY WIRING TO MAINTAIN EXISTING INSTALLATIONS WHICH MUST REMAIN IN SERVICE DURING CONSTRUCTION PERIOD.

11. MINIMUM SIZE CONDUCTOR TO BE USED IS #10AWG. (EXCEPT FOR CONTROLS).

12. MINIMUM SIZE CONDUIT TO BE USED IS ¾".

13. SCHEDULE ALL DISCONNECTION AND INTERRUPTIONS OF ELECTRICAL SERVICE, COMMUNICATIONS AND SUPERVISORY SYSTEMS WITH THE OWNER AND ENGINEER.

14. CONTRACTORS SHALL FOLLOW ALL OWNER SITE SAFETY WORK PROCESSES AND PROCEDURES, FOR EXAMPLE, WORK PERMITS, SAFETY TASK ANALYSES, LOCKOUT TAGOUT (LOTO), LOCK, TAG AND TRY, AND RED TAG, ETC.

15. CONTRACTORS SHALL COORDINATE ALL WORK ACTIVITIES WITH OPERATIONS, MAINTENANCE, AND OTHER CONTRACTORS.

ABBREVIATIONS:

A OR AMP	AMPERES
ACT	ABOVE COUNTER TOP (6")
AF	AMP FRAME
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
AIC	AMPERE INTERRUPTING CAPACITY
AM	AMMETER
APPROX	APPROXIMATELY
AS	AMMETER SELECTION SWITCH
ASYM	ASYMMETRICAL
AT	AMP TRIP
ATS	AUTOMATIC TRANSFER SWITCH
AUX	AUXILIARY
AWG	AMERICAN WIRE GAUGE
BLDG	BUILDING
C, CDT	CONDUIT
CB	CIRCUIT BREAKER
CKT	CIRCUIT
CLF	CURRENT LIMITING FUSE
CO	COMPANY
COL	COLUMN
CNTL	CONTROL
CS	COMBINATION STARTER
CT	CURRENT TRANSFORMER
Cu	COPPER
DIA	DIAMETER
DS OR DISC	DISCONNECT SWITCH
DWG(S)	DRAWING(S)
EG	EQUIPMENT GROUND
EGC	EQUIPMENT GROUND CONDUCTOR
ELEC	ELECTRIC, ELECTRICAL
EM	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING
EOL	END OF LINE
ESTOP	EMERGENCY STOP
EX	EXISTING
EXP	EXPLOSION PROOF
F	FUSE
FCR	FLOAT CONTROL RELAY
FL, FLR	FLOOR
FT	FEET
G OR GND	GROUND
GA	GAUGE
GALV	GALVANIZED
GEC	GROUNDING ELECTRODE CONDUCTOR
GEN	GENERATOR
GF	GROUND FAULT
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFI	GROUND FAULT INTERRUPTER
H-O-A	HAND-OFF-AUTOMATIC
HP	HORSEPOWER
HVAC	HEATTING, VENTILATION & AIR CONDITIONING
IG	ISOLATED GROUND
ISBR	INTRINSICALLY SAFE BARRIER RELAY
IMC	INTERMEDIATE METAL CONDUIT
IN	INCH
IR	INFRARED
ISCA	INSTANTANEOUS SHORT CIRCUIT AVAILABLE
JB OR J	JUNCTION BOX
kVA	KILOVOLT - AMPS
kW	KILOWATTS
kWH	KILOWATT-HOUR
L	LENGTH
LA	LIGHTNING ARRESTOR
LFMC	LIQUIDTIGHT FLEXIBLE METAL CONDUIT
LTG	LIGHTING
MAX	MAXIMUM
MCB OR MB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MECH	MECHANICAL
MER	MECHANICAL EQUIPMENT ROOM
MFR	MANUFACTURER
MH OR MTG	MOUNTING HEIGHT
MIN	MINIMUM
MLO	MAIN LUGS ONLY
MS	MANUAL SWITCH
MTD	MOUNTED
N	NEUTRAL
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MFRS ASSOCIATION
NF	NON-FUSIBLE
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
No.	NUMBER
NO	NORMALLY OPEN
NTS	NOT TO SCALE
O.C.	ON CENTER
OCPD	OVERCURRENT PROTECTIVE DEVICE
O/F	OVERFILL
OHE	OVERHEAD ELECTRICAL
OSHA	OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION
Ø	PHASE
P	POLE
PERM	PERMANENT

ABBREVIATIONS (CONT.):

PFC	POWER FACTOR CAPACITOR
PH	PHASE
PLC	PROGRAMMABLE LOGIC CONTROLLER
PNL	PANEL
PR	PAIR
PVC	POLYVINYLCHLORIDE CONDUIT
PWR	POWER
R&R	REMOVE AND RELOCATE
R	RELOCATE
RE	RELOCATED
RECEPT	RECEPTACLE
REF	REFERENCE
RGS	RIGID GALVANIZED STEEL
RMS	ROOT MEAN SQUARE
SF	SEAL FITTING
SH	SHIELDED
SS	STAINLESS STEEL
SPD	SURGE PROTECTION DEVICE
SW	SWITCH
SWBD	SWITCHBOARD
SYM	SYMMETRICAL
TEL	TELEPHONE
TWIS	TWISTED INDIVIDUAL SHIELD
TWOS	TWISTED OUTER SHIELD
TYP	TYPICAL
UG	UNDERGROUND
UL	UNDERWRITER'S LABORATORIES
UV	ULTRAVIOLET
V	VOLTS
VA	VOLT AMPS
VAC	VOLTS ALTERNATING CURRENT
VDC	VOLTS DIRECT CURRENT
VFD	VARIABLE FREQUENCY DRIVE
VM	VOLTMETER
VMS	VOLTMETER SELECTOR SWITCH
W	WATT
W/	WITH
W/O	WITHOUT
WM	WATTMETER
WP	WEATHER PROOF
XFMR	TRANSFORMER

ONE-LINE DIAGRAM:

CONNECTION TO ELECTRICAL UTILITY. VOLTAGE, PHASES AS INDICATED

UTILITY METER

GENERATOR
- 'XX' DESIGNATES POWER RATING
- 'YY' DESIGNATES VOLTAGE

CURRENT TRANSFORMER (CT).
'X:Y' INDICATES RATIO
'Z' INDICATES QUANTITY (1 PER PHASE UNLESS OTHERWISE INDICATED)

POTENTIAL TRANSFORMER (PT).
'X:Y' INDICATES RATIO
'Z' INDICATES QUANTITY (1 PER PHASE UNLESS OTHERWISE INDICATED)

TWO WINDING TRANSFORMER, PHASES AS DETERMINED BY OCPD
-'Z' INDICATES % IMPEDANCE ANSI STANDARD IF NOT SPECIFIED
-'WW' INDICATES STRUCTURE DESIGNATION
-'XX' INDICATES POWER RATING
-'YY' INDICATES PRIMARY VOLTAGE
-'QQ' INDICATES SECONDARY VOLTAGE WINDINGS AS INDICATED
-'△' INDICATES DELTA CONNECTION
-'Y' INDICATES WYE CONNECTION WITH GROUNDED NEUTRAL

ONE-LINE DIAGRAM (CONT.):

WTS
XXA
Y

TRANSFER SWITCH
- 'W' INDICATES
A: AUTOMATIC
M: MANUAL
- 'XX' INDICATES RATING IN AMPS
- 'Y' INDICATES NUMBER OF POLES

XXA
Y

SWITCH
-'XX' INDICATES AMPERE RATING
-'Y' INDICATES NUMBER OF POLES

COMBINATION STARTER

XXAT/W
YYAF
Z

LOW VOLTAGE MOLDED CASE CIRCUIT BREAKER.
- 'XX' INDICATES TRIP RATING IN AMPS (IF TRIP INTEGRAL)
- 'YY' INDICATES FRAME RATING, ID SPECIFIED
- 'W' INDICATES NUMBER OF POLES (3 UNLESS OTHERWISE NOTED)
- 'Z' DESIGNATES TYPE:
BLANK: THERMAL MAGNETIC
LSI: ELECTRONIC TRIP
MCP: MOTOR CIRCUIT PROTECTOR
GFI: GROUND FAULT INTERRUPTING

XXA
Y

FUSE
- 'XX' INDICATES TRIP RATING IN AMPS
- 'Y' INDICATES CLASSIFICATION (IF SPECIFIED)

ANGLED BRACKETS INDICATE DRAWOUT DEVICE

XX

PROTECTIVE RELAY, METERING, OR INTERLOCKING DEVICE.
'XX' DESIGNATIONS:
A: AMMETER
V: VOLTMETER
PF: POWER FACTOR
K: KIRK KEY INTERLOCK
I: ELECTRICAL INTERLOCK
25: SYNCHRONISM CHECK
27: UNDER VOLTAGE
46: CURRENT UNBALANCE
47: PHASE-SEQUENCE VOLTAGE
50: INSTANTANEOUS OVERCURRENT
51: TIME OVERCURRENT
52: AC CIRCUIT BREAKER
55: POWER FACTOR
59: OVER VOLTAGE
64: GROUND PROTECTIVE RELAY
81: FREQUENCY
86: LOCKING OUT RELAY
* SPECIFIC MINIMUM FUNCTIONS TO BE LISTED BY ANSI/IEEE DEVICE NUMBERS

TRIP FRAME

X

FULL VOLTAGE NON REVERSING CONTACTOR
'X' DESIGNATES NEMA SIZE OR:
BC: BYPASS CONTACTOR
OC: OUTPUT ISOLATION CONTACTOR
IC: INPUT ISOLATION CONTACTOR

XXA/Y

LIGHTING CONTACTOR
-'XX' DESIGNATES AMPERE RATING
-'Y' DESIGNATES NUMBER OF POLES

X

MOTOR OVERLOAD.
RATED FOR DEVICE PROTECTING.
CLASS 20 UNLESS OTHERWISE INDICATED.
-'X' DESIGNATES TYPE:
T-THERMAL
E-ELECTRONIC

ONE-LINE DIAGRAM (CONT.):

F R X

FULL VOLTAGE REVERSING CONTACTOR RATED FOR DEVICE PROTECTING.
CLASS 20 UNLESS OTHERWISE INDICATED.
-'X' DESIGNATES NEMA SIZE:
-'F' INDICATES FORWARD CONTACTOR
-'R' INDICATES REVERSING CONTACTOR

H L X

TWO SPEED STARTER
-'X' DESIGNATES NEMA SIZE:
-'H' INDICATES HIGH SPEED CONTACTOR
-'L' INDICATES LOW SPEED CONTACTOR

X
Y%

REDUCED VOLTAGE AUTOTRANSFOMER
-'X' DESIGNATES NEMA SIZE:
-'Y' INDICATES TAP PERCENTAGE

VFD
XXA

VARIABLE FREQUENCY DRIVE.
-'XX' INDICATES MINIMUM AMP RATING (IF NOT SPECIFIED, VFD TO MATCH HORSEPOWER RATING OF MOTOR SUPPLIED.)

CS
XXA

COMBINATION STARTER
'XX' - MINIMUM AMP RATING

RVSS
XXA

REDUCED VOLTAGE SOFT START.
-'XX' INDICATES MINIMUM AMP RATING (IF NOT SPECIFIED, RVSS TO MATCH HORSEPOWER RATING OF MOTOR SUPPLIED.)

XXA/Y

NON-FUSED DISCONNECT SWITCH
-'XX' DESIGNATES AMPERE RATING OF DISCONNECT
-'Y' DESIGNATES NUMBER OF POLES

XXA/Y

FUSED DISCONNECT SWITCH
-'XX' DESIGNATES AMPERE RATING OF DISCONNECT
-'Y' DESIGNATES NUMBER OF POLES

WW
XX HP

MOTOR
-'WW' INDICATES EQUIPMENT DESIGNATION
-'XX' INDICATES HORSEPOWER RATING.

PANEL: X

PANELBOARD
-'X' INDICATES STRUCTURE DESIGNATION.

UPS

UNINTERRUPTIBLE POWER SUPPLY

SPD

SURGE SUPPRESSION DEVICE.

XX

LIGHTNING ARRESTORS
-'XX' INDICATES
IC: INTERMEDIATE CLASS
DC: DISTRIBUTION CLASS
SC: STATION CLASS

EARTH GROUND

ZZ

RESISTOR
-'ZZ' INDICATES IMPEDANCE IN OHMS

MISCELLANEOUS ELEC. EQUIPMENT SUCH AS PANEL, ETC. EQUIPMENT TYPE AND RATINGS TO BE INDICATED

ELEC. EQUIPMENT BOUNDARY, INDICATES MULTIPLE DEVICES ENCLOSED WITHIN BORDER ARE LOCATED WITHIN THE SAME ENCLOSURE, OR MOUNTED TO SAME PANEL RACK.

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 2/26/2014

DESIGNER/DRAFTER: **W. CAREY**
CHECKED BY: **D. NEWMAN**
NOT TO SCALE

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296_007_04_FEL_001.dgn

SIGNATURE/ BLOCK:

Hatch Mott MacDonald
Suite 100, North Lobby
400 Blue Hill Drive
Westwood, MA 02090

PROJECT TITLE:
NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR

TOWN: **BERLIN**

DRAWING TITLE:
GENERAL NOTES, LEGEND & ABBR. SHEET 1 OF 2

PROJECT NO. **170-3155**
DRAWING NO. **FEL-001**
SHEET NO. **01.13.029**

LIGHTING:

NOTE:
SEE LIGHTING FIXTURE SCHEDULE DWG. FLI-901
FOR LIGHTING FIXTURE SYMBOLS.

^{XX} — WALL SWITCH
XX - WAYS OF SWITCHING

X — CEILING MOUNTED OCCUPANCY SENSOR.

X — WALL MOUNTED OCCUPANCY SENSOR.
X - SENSOR ZONE

E — EMERGENCY LIGHT

STA — STATION ENTRANCE SIGN

RACEWAYS:

CONDUIT RUN CONCEALED ABOVE CEILING OR IN WALLS

CONDUIT RUN BELOW GRADE OR IN SLAB

CONDUIT RUN EXPOSED PARALLEL OR PERPENDICULAR TO BUILDING LINES

XXXX-YY — HOMERUN TO PANELBOARD. MINIMUM CONDUIT SIZE SHALL BE 3/4"."XXXX"- PANELBOARD NAME
"YY"- CIRCUIT NUMBER

FLEXIBLE CONDUIT

CONDUIT TURNING DOWN

CONDUIT TURNING UP

CONDUIT CAP

CONDUIT EXPANSION FITTING

HH — HANDHOLE

MH — MANHOLE

PB — PULL BOX

JB — JUNCTION BOX

CABLE TRAY (DRAWN TO SCALE ON PLANS)

XXXX-Y — CONDUIT

GROUNDING & LIGHTNING PROTECTION:

CONNECTION TO GROUND GRID, MECHANICAL OR CADWELD CONNECTION AS NOTED

GROUND ROD

GROUND TEST STATION

GROUND ANODE

VEHICLE GROUNDING STATION

DIRECT BURIED GROUND CONDUCTOR

GROUND CONDUTOR CONNECTION TO EQUIPMENT

LIGHTNING PROTECTION AIR TERMINAL

LIGHTNING PROTECTION SYSTEM CONDUCTOR

LIGHTNING PROTECTION SYSTEM DOWN CONDUCTOR

GROUNDING CONDUCTOR CONNECTION TO FUTURE EQUIPMENT

POWER EQUIPMENT

480Y/277 VOLT, 3Ø, 4W MAIN DISTRIBUTION PANEL

120Y/208 VOLT, 3Ø, 4W POWER PANEL

480Y/277 VOLT, 3Ø, 4W LIGHTING PANEL

480Y/277 VOLT, 3Ø, 4W EMER. POWER PANEL

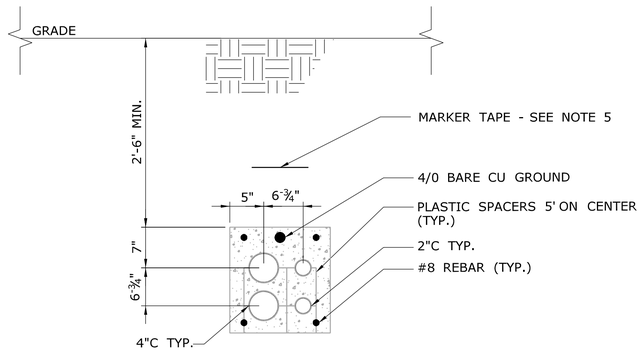
120Y/208 VOLT, 3Ø, 4W EMER. POWER PANEL

OUTLETS AND RECEPTACLES:

XX — DUPLEX RECEPTACLE, MOUNT 18" AFF UNLESS OTHERWISE NOTED.

FOR ALL RECEPTACLES, 'XX' DESIGNATES:

GFCI - GROUND FAULT CIRCUIT INTERRUPTER
WP - WEATHERPROOF



TYPICAL DUCTBANK SECTION
SCALE: NTS

DUCTBANK NOTES:

1. A COMPACTED BASE OF CRUSHED STONE OF 12" MINIMUM DEPTH SHALL BE INSTALLED ON A LEVEL COMPACTED SUB-GRADE WITH A MINIMUM SOIL BEARING CAPACITY OF 1000 LBS PER SQ. FT.
2. CONCRETE SHALL CONFORM WITH ACI BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE, AND SHALL HAVE A MINIMUM ULTIMATE STRENGTH OF 3000 PSI AT 28 DAYS. A MAXIMUM OF 1 1/2" COARSE AGGREGATE AND AIR ENTRAINMENT FOR A TOTAL AIR CONTENT OF 3%-6% BY VOLUME.
3. REINFORCING STEEL SHALL BE NEW DEFORMED BARS MEETING ASTM A615 SPECIFICATION FOR GRADE NO. 60 STEEL. THE REINFORCING SHOWN IS TYPICAL FOR FIELD FABRICATION. REINFORCING BARS SHOULD HAVE 2" MIN. CONCRETE COVER.
4. THE TOP SURFACE SHALL BE SMOOTH AND LEVEL WITH A 1" CHAMFER ALONG THE UPPER EDGES.
5. ALL DUCTBANKS SHALL BE IDENTIFIED BY A RED MARKER TAPE SHALL RUN DIRECTLY ABOVE THE ENTIRE LENGTH OF EACH CONDUIT SECTION, WITH A MINIMU VERTICAL SEPARATION OF 12".

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: **W. CAREY**
CHECKED BY: **D. NEWMAN**

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296_007_-04_FEL_-002.dgn

SIGNATURE/ BLOCK:

Hatch Mott MacDonald
Suite 100, North Lobby
400 Blue Hill Drive
Westwood, MA 02090

PROJECT TITLE:
NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR

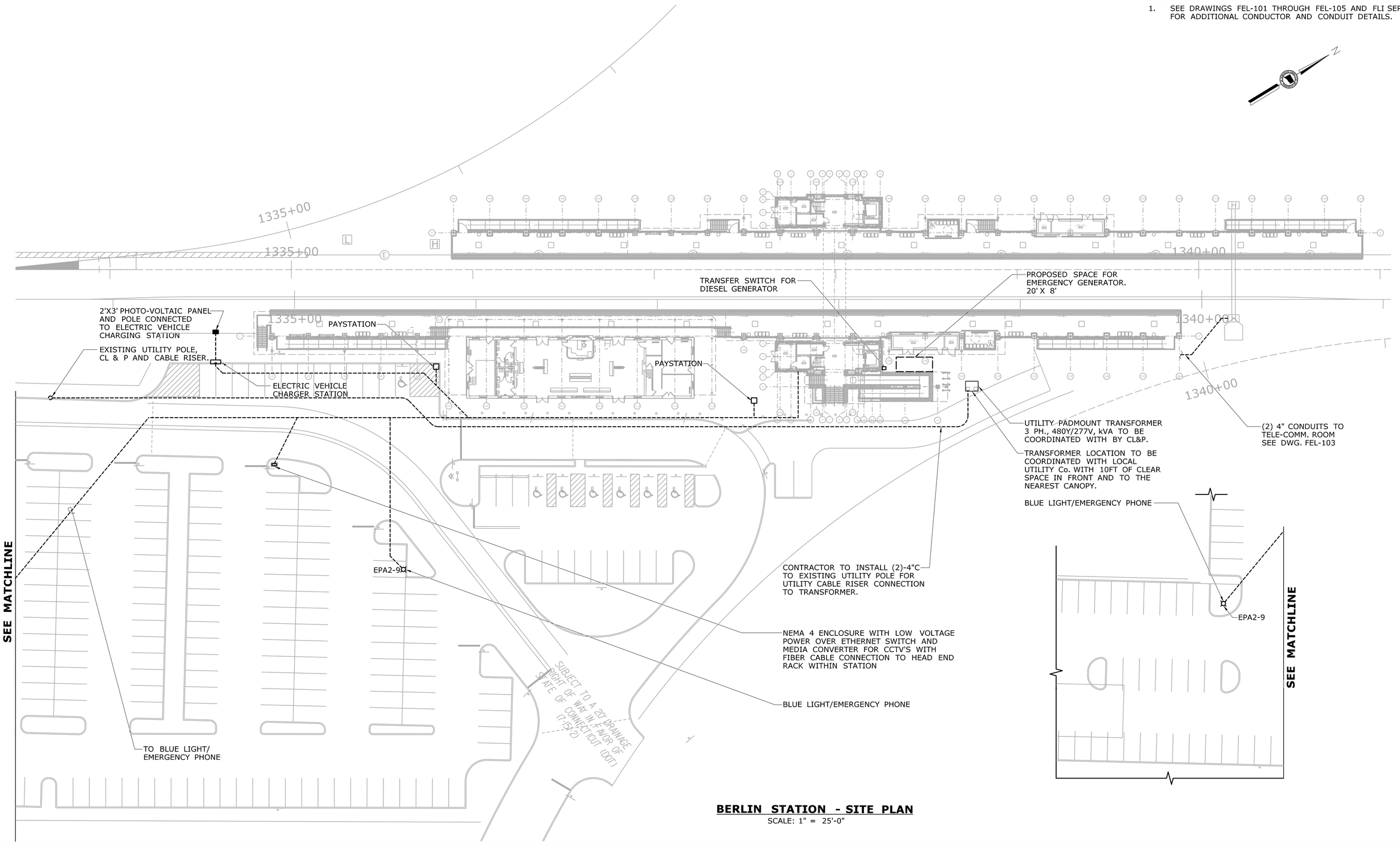
TOWN: **BERLIN**

DRAWING TITLE:
GENERAL NOTES, LEGEND & ABBR. SHEET 2 OF 2

PROJECT NO. **170-3155**
DRAWING NO. **FEL-002**
SHEET NO. **01.13.030**

NOTES:

1. SEE DRAWINGS FEL-101 THROUGH FEL-105 AND FLI SERIES FOR ADDITIONAL CONDUCTOR AND CONDUIT DETAILS.



BERLIN STATION - SITE PLAN

SCALE: 1" = 25'-0"

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: **W. CAREY**

CHECKED BY: **D. NEWMAN**

SCALE AS NOTED

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296_007_04_CSP_100.dgn

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Hatch Mott MacDonald
Suite 100, North Lobby
400 Blue Hill Drive
Westwood, MA 02090

PROJECT TITLE:
NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR

TOWN: **BERLIN**

DRAWING TITLE: **ELECTRICAL SITE PLAN**

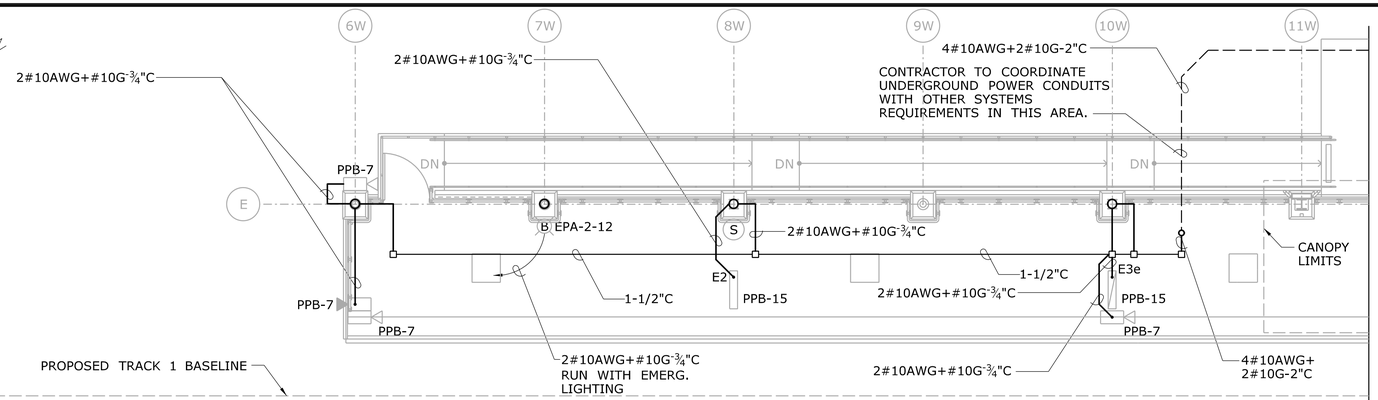
PROJECT NO. **170-3155**

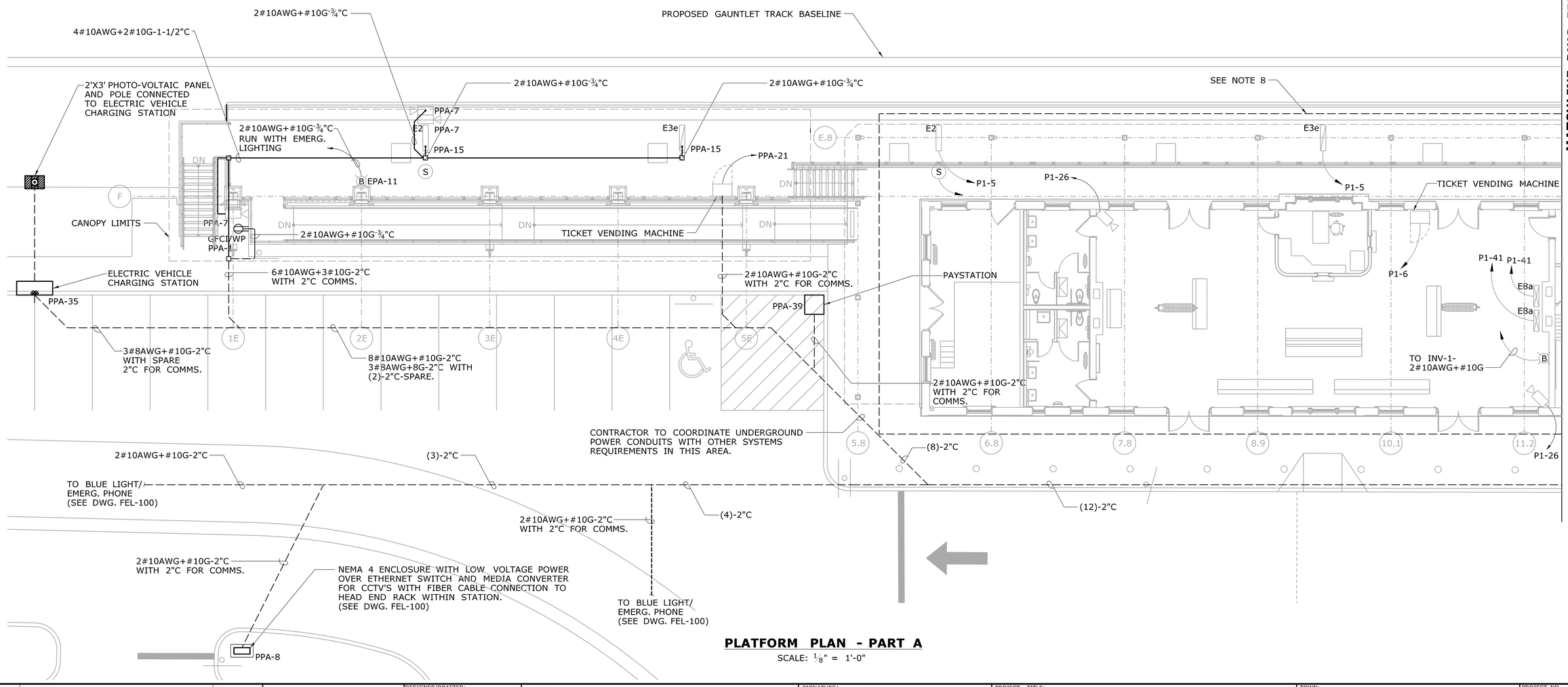
DRAWING NO. **FEL-100**

SHEET NO. **01.13.031**

NOTES:

1. CIRCUITS ARE SHOWN DIAGRAMMATICALLY, SEE DRAWING FEL-601 FOR CONDUIT RUNS IN CANOPY.
2. ALL RECEPTACLES ARE FOR MAINTENANCE USE ONLY MOUNTED ON THE STEM WALL, ON THE BACK OF THE PLATFORM.
3. CONDUIT SIZES ARE PER NEC 2011 WITH ALLOWANCE FOR EXTRA CONDUCTORS.
4. CONDUIT ROUTES ARE SHOWN DIAGRAMMATICALLY. REFER TO DETAILS ON DWG. FEL-601 AND FEL-602 FOR TYPICAL LAYOUTS.
5. CANOPY MOUNTED CONDUITS AND JUNCTION BOXES TO BE KEPT AT A MINIMUM.
6. CONNECTION IN CANOPY FROM JUNCTION BOX TO FIXTURES IS LIQUIDTIGHT FLEXIBLE CONDUIT.
7. UNDERGROUND CONDUITS ARE TO BE CONCRETE INCASED 2" AND GROUPED TOGETHER 30" MINIMUM BELOW GRADE WHERE PRACTICAL.
8. SEE VOLUME 2 DWG. EP-2 FOR EXISTING BERLIN TRAIN STATION. WORK SHOWN IS BY VOLUME 2 AND INCLUDED FOR REFERENCE ONLY (DEVICES PROVIDED BY VOLUME 1).





PLATFORM PLAN - PART A
SCALE: 1/8" = 1'-0"

MATCHLINE DWG. FEL-102

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: **D.CHERBELEATA**
CHECKED BY: **D. NEWMAN**
SCALE: 1/8" = 1'-0"

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296_007_04_FEL_101.dgn

SIGNATURE/ BLOCK:
Hatch Mott MacDonald
Suite 100, North Lobby
400 Blue Hill Drive
Westwood, MA 02090

PROJECT TITLE:
NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR

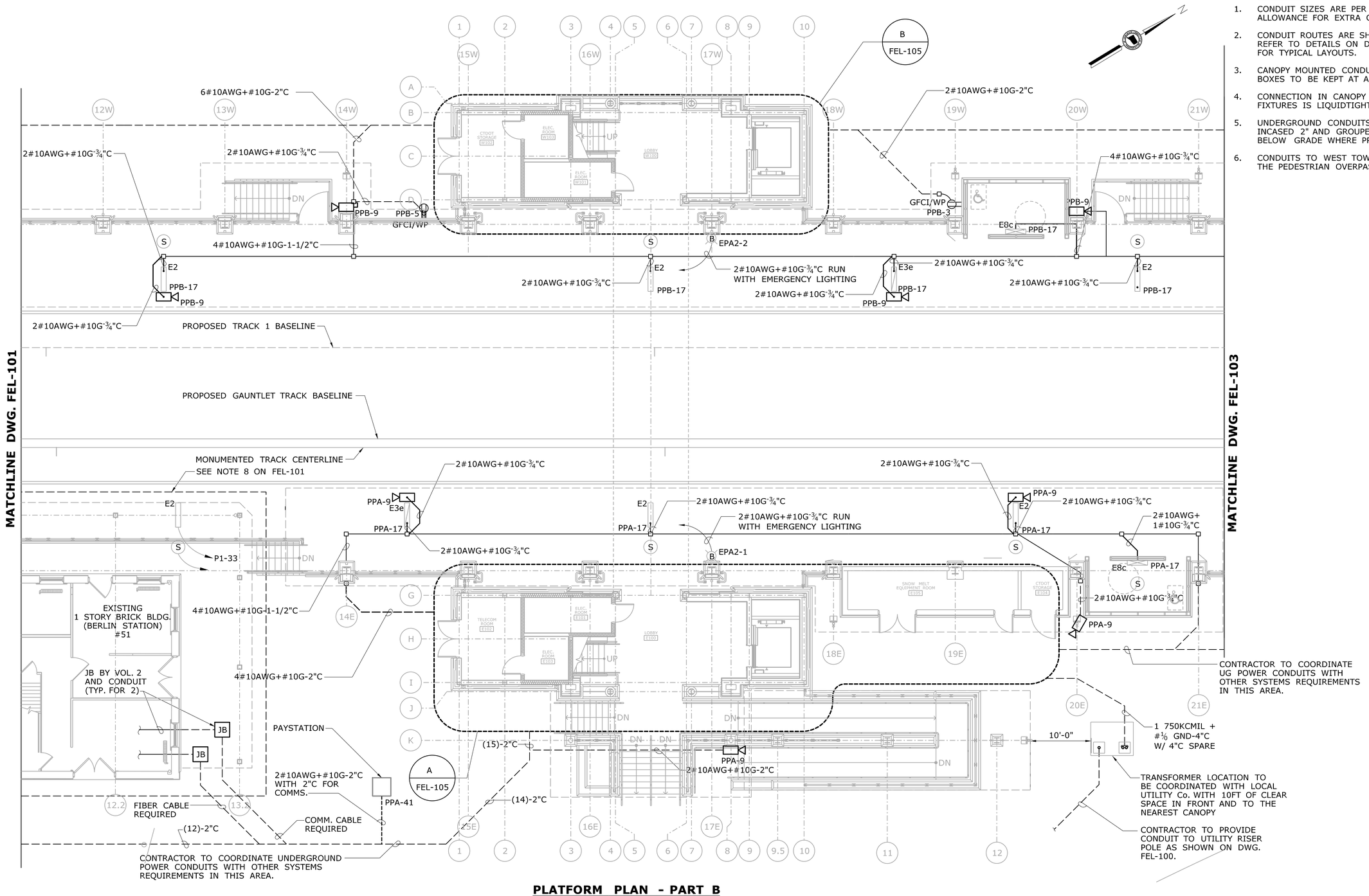
TOWN: **BERLIN**

DRAWING TITLE:
ELECTRICAL POWER PLATFORM PLAN PART A

PROJECT NO. **170-3155**
DRAWING NO. **FEL-101**
SHEET NO. **01.13.032**

NOTES:

1. CONDUIT SIZES ARE PER NEC 2011 WITH ALLOWANCE FOR EXTRA CONDUCTORS.
2. CONDUIT ROUTES ARE SHOWN DIAGRAMMATICALLY. REFER TO DETAILS ON DWG. FEL-601 AND FEL-602 FOR TYPICAL LAYOUTS.
3. CANOPY MOUNTED CONDUITS AND JUNCTION BOXES TO BE KEPT AT A MINIMUM.
4. CONNECTION IN CANOPY FROM JUNCTION BOX TO FIXTURES IS LIQUIDTIGHT FLEXIBLE CONDUIT.
5. UNDERGROUND CONDUITS ARE TO BE CONCRETE INCASED 2" AND GROUPED TOGETHER 30" MINIMUM BELOW GRADE WHERE PRACTICAL.
6. CONDUITS TO WEST TOWER TO BE ROUTED UNDER THE PEDESTRIAN OVERPASS, SEE DWG. FEL-603.



PLATFORM PLAN - PART B
SCALE: 1/8" = 1'-0"

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: D.CHERBELEATA
CHECKED BY: D. NEWMAN
SCALE: 1/8" = 1'-0"

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA..CGR..CPS..0170-2296..007_..04..FEL_..102.dgn

SIGNATURE/BLOCK:
Hatch Mott MacDonald
Suite 100, North Lobby
400 Blue Hill Drive
Westwood, MA 02090

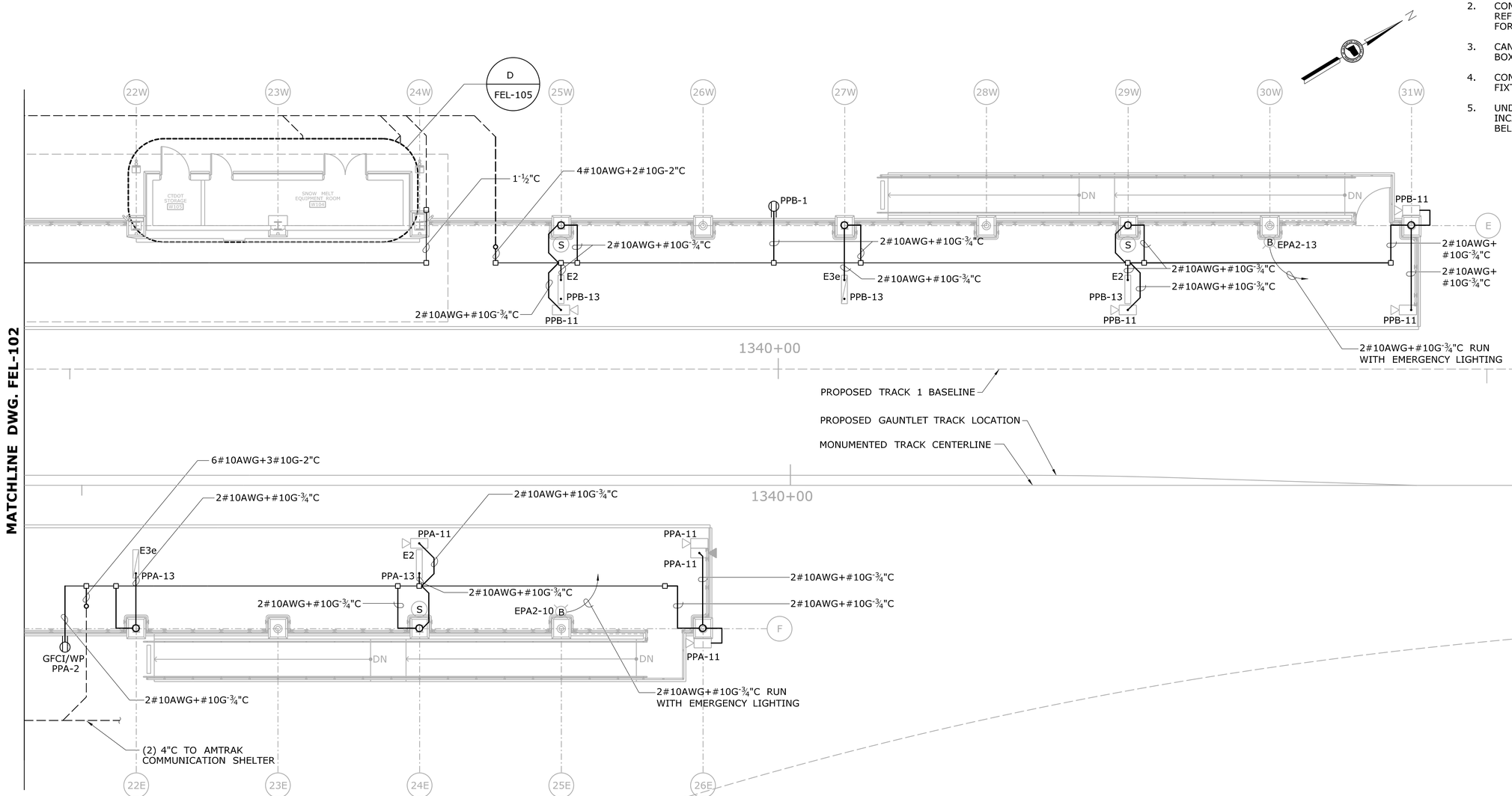
PROJECT TITLE:
NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR

TOWN: **BERLIN**
DRAWING TITLE: **ELECTRICAL POWER PLATFORM PLAN PART B**

PROJECT NO. **170-3155**
DRAWING NO. **FEL-102**
SHEET NO. **01.13.033**

NOTES:

1. CONDUIT SIZES ARE PER NEC 2011 WITH ALLOWANCE FOR EXTRA CONDUCTORS.
2. CONDUIT ROUTES ARE SHOWN DIAGRAMMATICALLY. REFER TO DETAILS ON DWG. FEL-601 AND FEL-602 FOR TYPICAL LAYOUTS.
3. CANOPY MOUNTED CONDUITS AND JUNCTION BOXES TO BE KEPT AT A MINIMUM.
4. CONNECTION IN CANOPY FROM JUNCTION BOX TO FIXTURES IS LIQUIDTIGHT FLEXIBLE CONDUIT.
5. UNDERGROUND CONDUITS ARE TO BE CONCRETE INCASED 2" AND GROUPED TOGETHER 30" MINIMUM BELOW GRADE WHERE PRACTICAL.



PLATFORM PLAN - PART C

SCALE: ⅛" = 1'-0"

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: D.CHERBELEATA
CHECKED BY: D. NEWMAN
SCALE: ⅛" = 1'-0"

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA..CGR..CPS..0170-2296..007_..04..FEL_..103.dgn

SIGNATURE/ BLOCK:

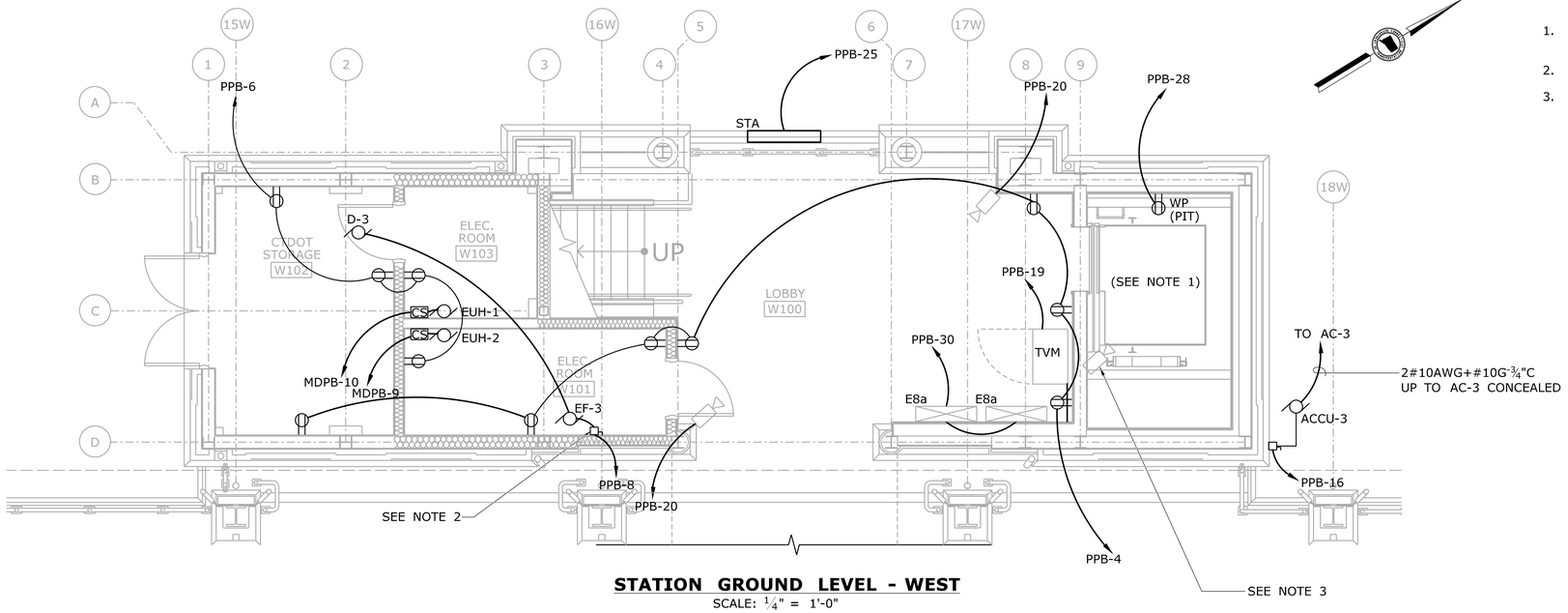
Hatch Mott MacDonald
Suite 100, North Lobby
400 Blue Hill Drive
Westwood, MA 02090

PROJECT TITLE:
NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR

TOWN: BERLIN

DRAWING TITLE:
ELECTRICAL POWER PLATFORM PLAN PART C

PROJECT NO. 170-3155
DRAWING NO. FEL-103
SHEET NO. 01.13.034

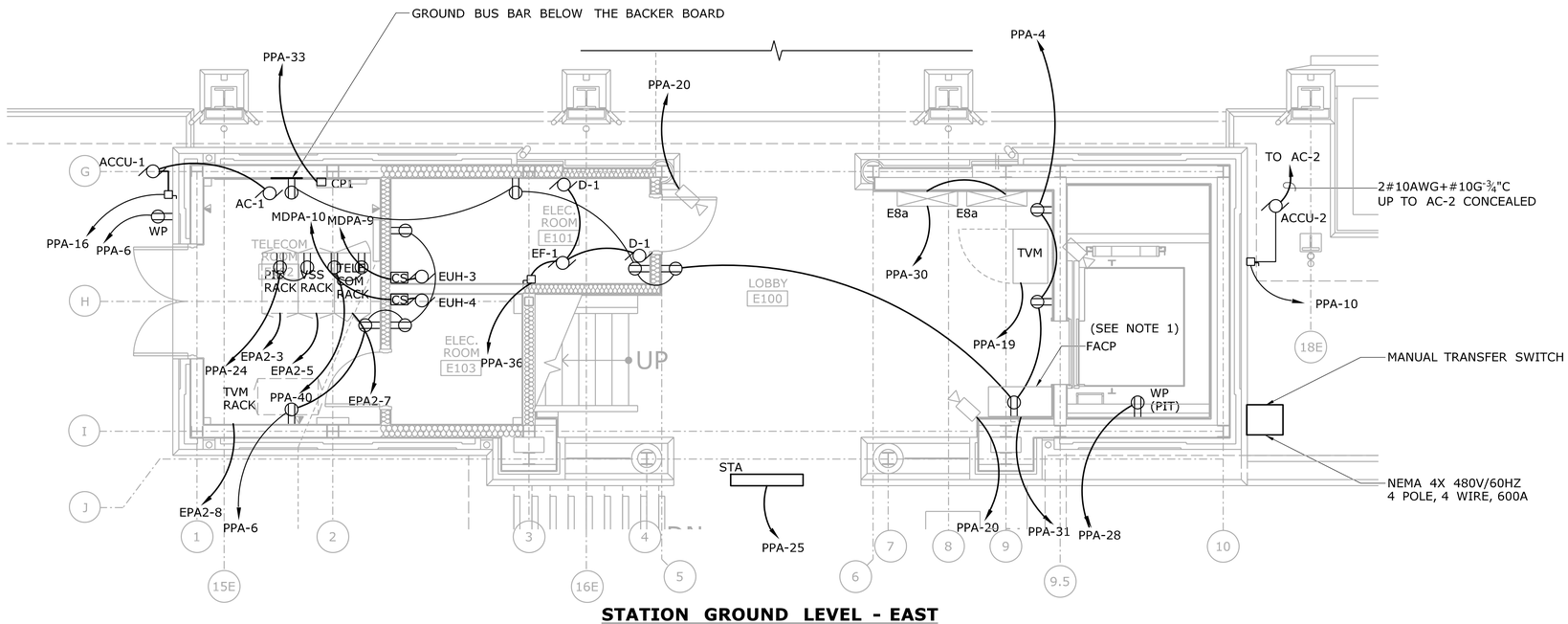


STATION GROUND LEVEL - WEST

SCALE: 1/4" = 1'-0"

NOTES:

1. SEE DWG. FEL-604 FOR ELEVATOR EQUIPMENT REQUIREMENTS.
2. ALL DISCONNECT SWITCHES ARE 30A.
3. CAMERAS TO BE PROVIDED BY ELEVATOR SUPPLIER, SEE DWG. FEL-604 FOR DETAILS.



STATION GROUND LEVEL - EAST

SCALE: 1/4" = 1'-0"

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: D.CHERBELEATA

CHECKED BY: D. NEWMAN

SCALE: 1/4" = 1'-0"

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296_007_04_FEL_104.dgn

SIGNATURE/ BLOCK:

Hatch Mott MacDonald
Suite 100, North Lobby
400 Blue Hill Drive
Westwood, MA 02090

PROJECT TITLE:

NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR

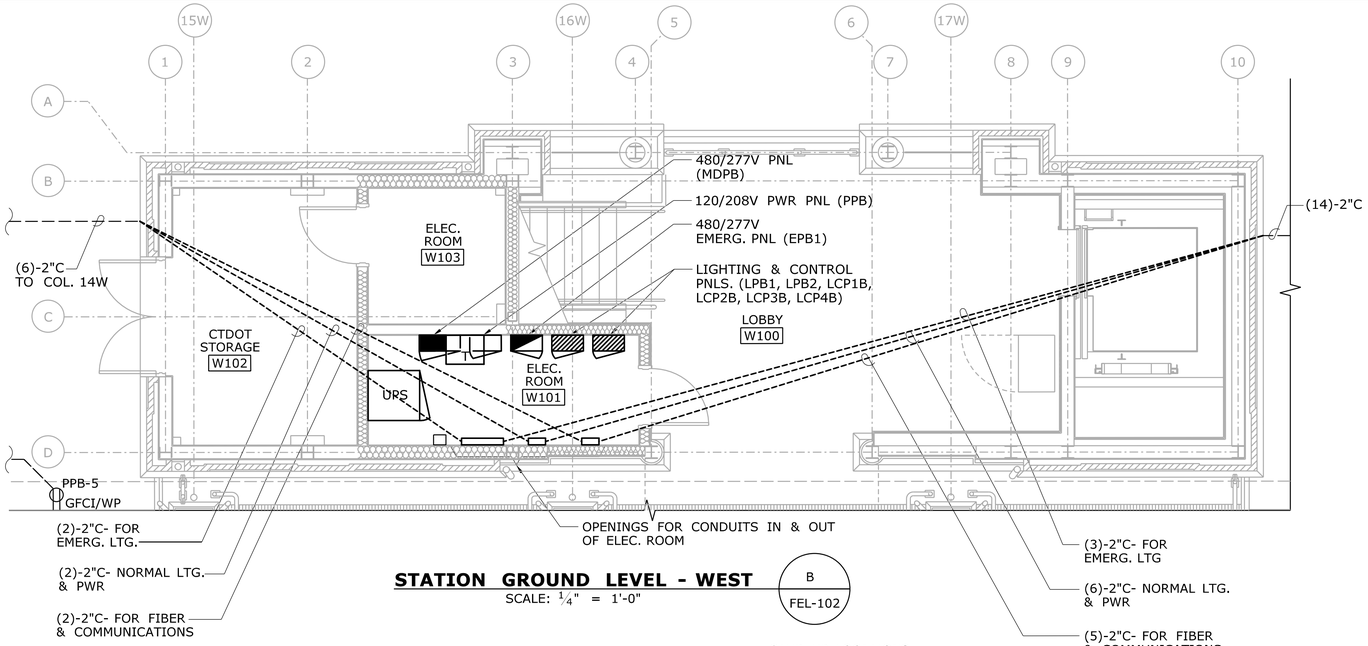
TOWN: **BERLIN**

DRAWING TITLE: **ELECTRICAL POWER STATION GRD LEV. PLANS**

PROJECT NO. **170-3155**

DRAWING NO. **FEL-104**

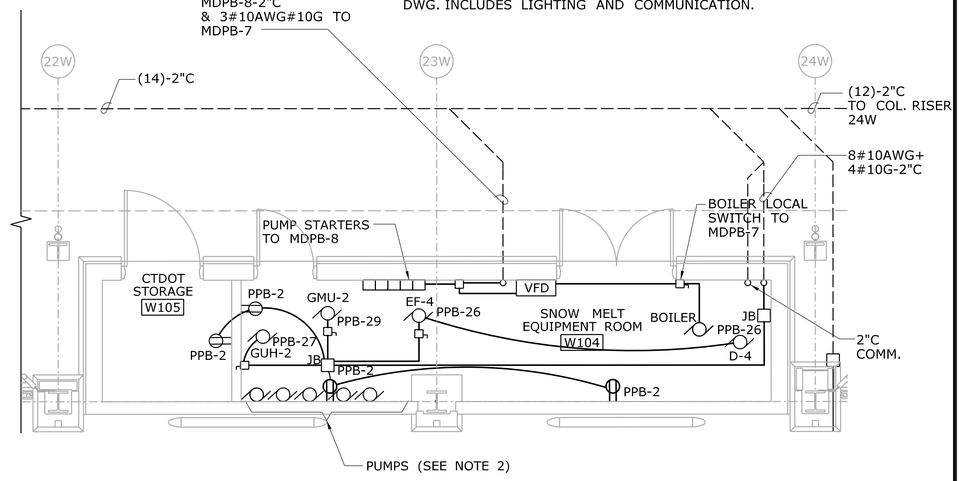
SHEET NO. **01.13.035**



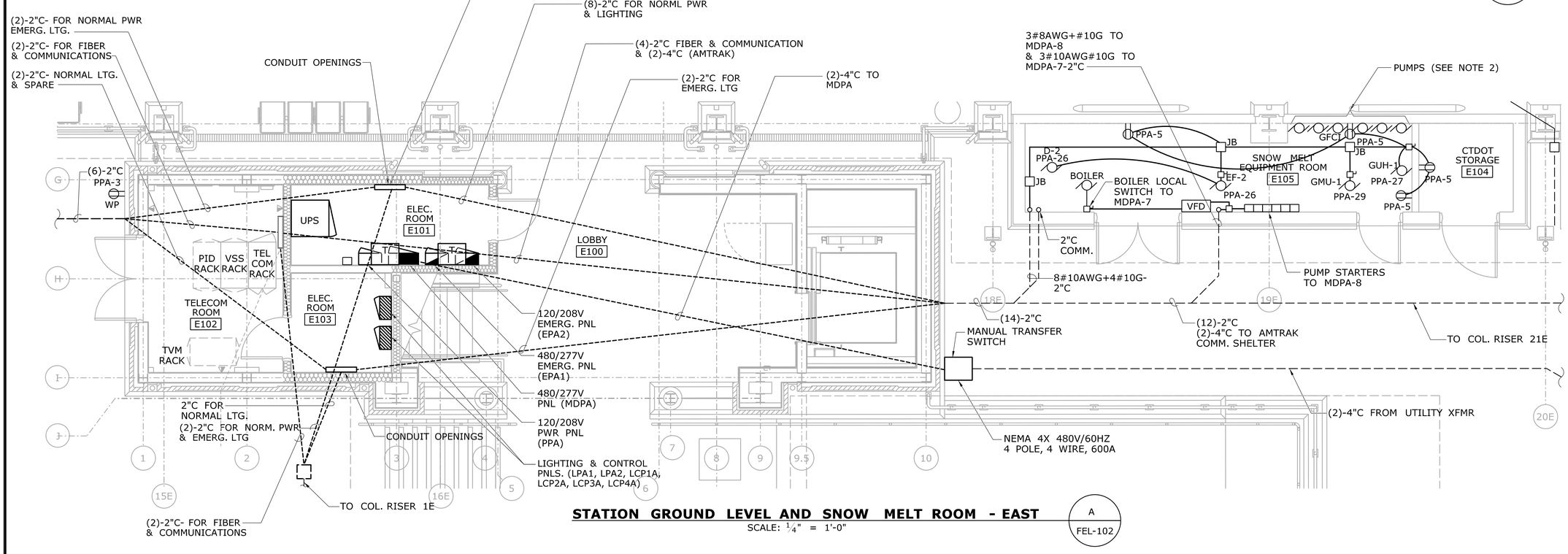
STATION GROUND LEVEL - WEST
SCALE: 1/4" = 1'-0"
B / FEL-102

NOTES:

1. SEE DWG. FLI-801, 802, 803-PANEL SCHEDULES FOR MOTOR, CONDUCTOR & CONDUIT SIZES.
2. SEE ONE LINE DIAGRAMS FEL-701 & FEL-702.
3. TOTAL NUMBER OF CONDUITS SHOWN ON THIS DWG. INCLUDES LIGHTING AND COMMUNICATION.



SNOW MELT ROOM - WEST
SCALE: 1/4" = 1'-0"
D / FEL-103



STATION GROUND LEVEL AND SNOW MELT ROOM - EAST
SCALE: 1/4" = 1'-0"
A / FEL-102

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: D.CHERBELEATA
CHECKED BY: D. NEWMAN
SCALE: 1/4" = 1'-0"

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296_007_.04_FEL_.105.dgn

SIGNATURE/ BLOCK:

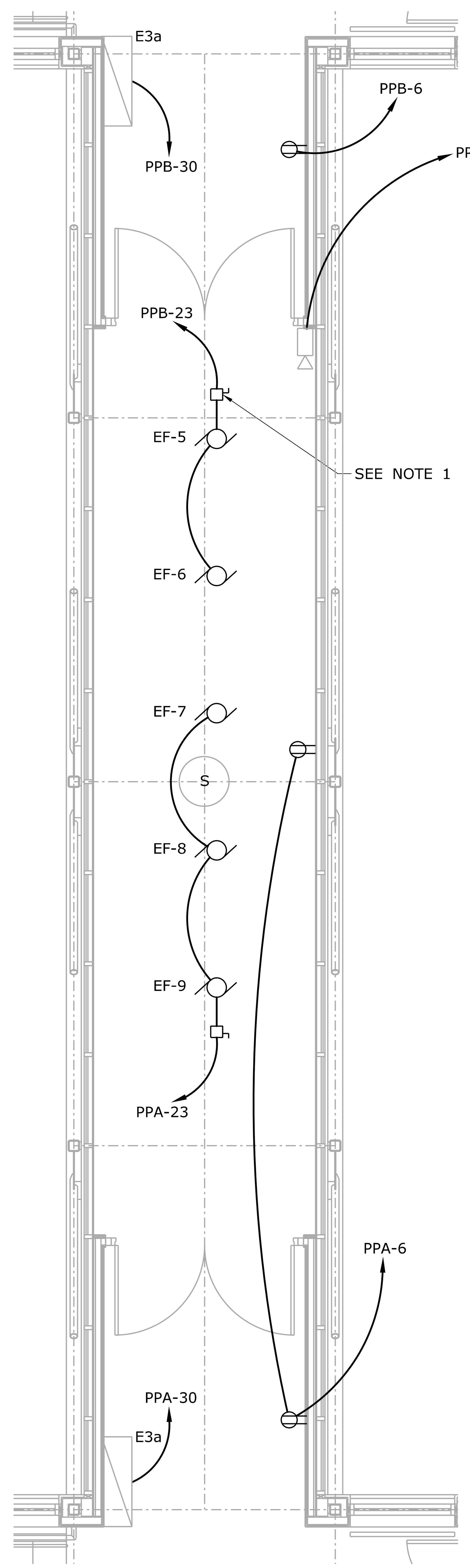
Hatch Mott MacDonald
Suite 100, North Lobby
400 Blue Hill Drive
Westwood, MA 02090

PROJECT TITLE:
NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR

TOWN: **BERLIN**

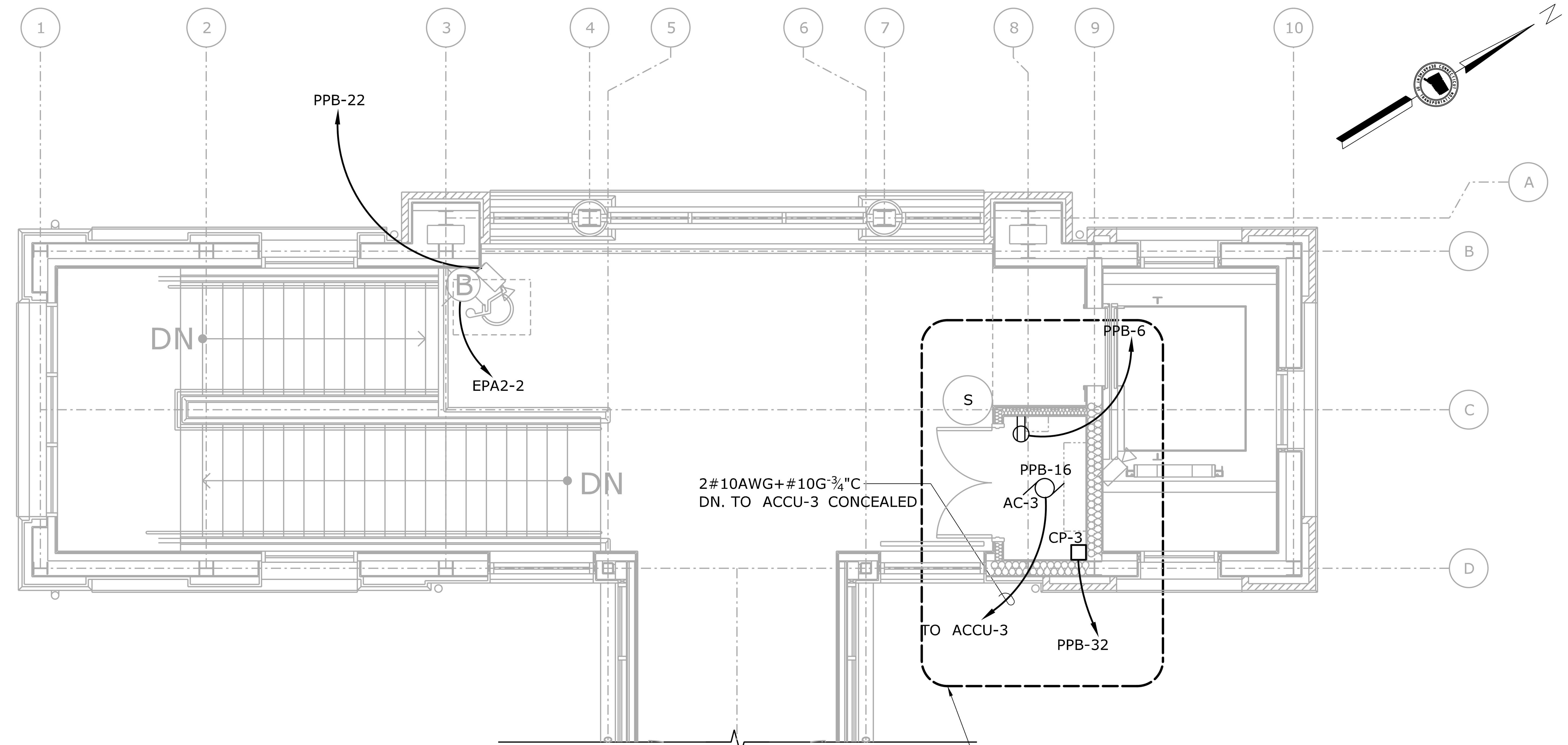
DRAWING TITLE:
ELECTRICAL POWER EQUIP. ROOMS PLANS

PROJECT NO. **170-3155**
DRAWING NO. **FEL-105**
SHEET NO. **01.13.036**



PEDESTRIAN BRIDGE PLAN

SCALE: 1/4" = 1'-0"



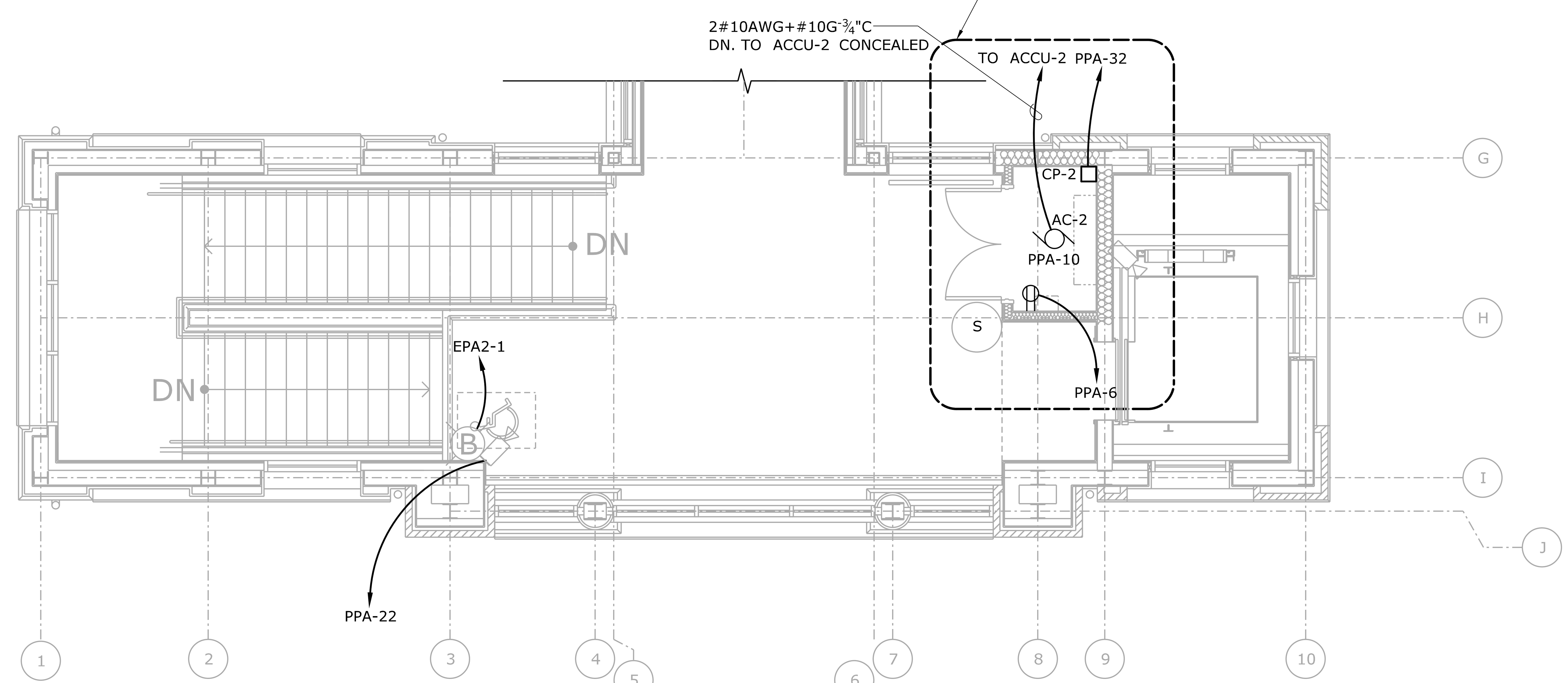
ENLARGED PLAN - WEST TOWER

SCALE: 1/4" = 1'-0"

SEE NOTE 2

NOTES:

1. ALL DISCONNECT SWITCHES ARE 30A.
2. SEE DWG. FEL-604 FOR ELEVATOR CIRCUIT REQUIREMENTS.



ENLARGED PLAN - EAST TOWER

SCALE: 1/4" = 1'-0"

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: **D.CHERBELEATA**

CHECKED BY: **D. NEWMAN**

SCALE: 1/4" = 1'-0"

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296_007__04_FEL__106.dgn

SIGNATURE/ BLOCK:

Hatch Mott MacDonald
Suite 100, North Lobby
400 Blue Hill Drive
Westwood, MA 02090

PROJECT TITLE: **NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR**

TOWN: **BERLIN**

DRAWING TITLE: **ELECTRICAL POWER PED. BRIDGE PLANS**

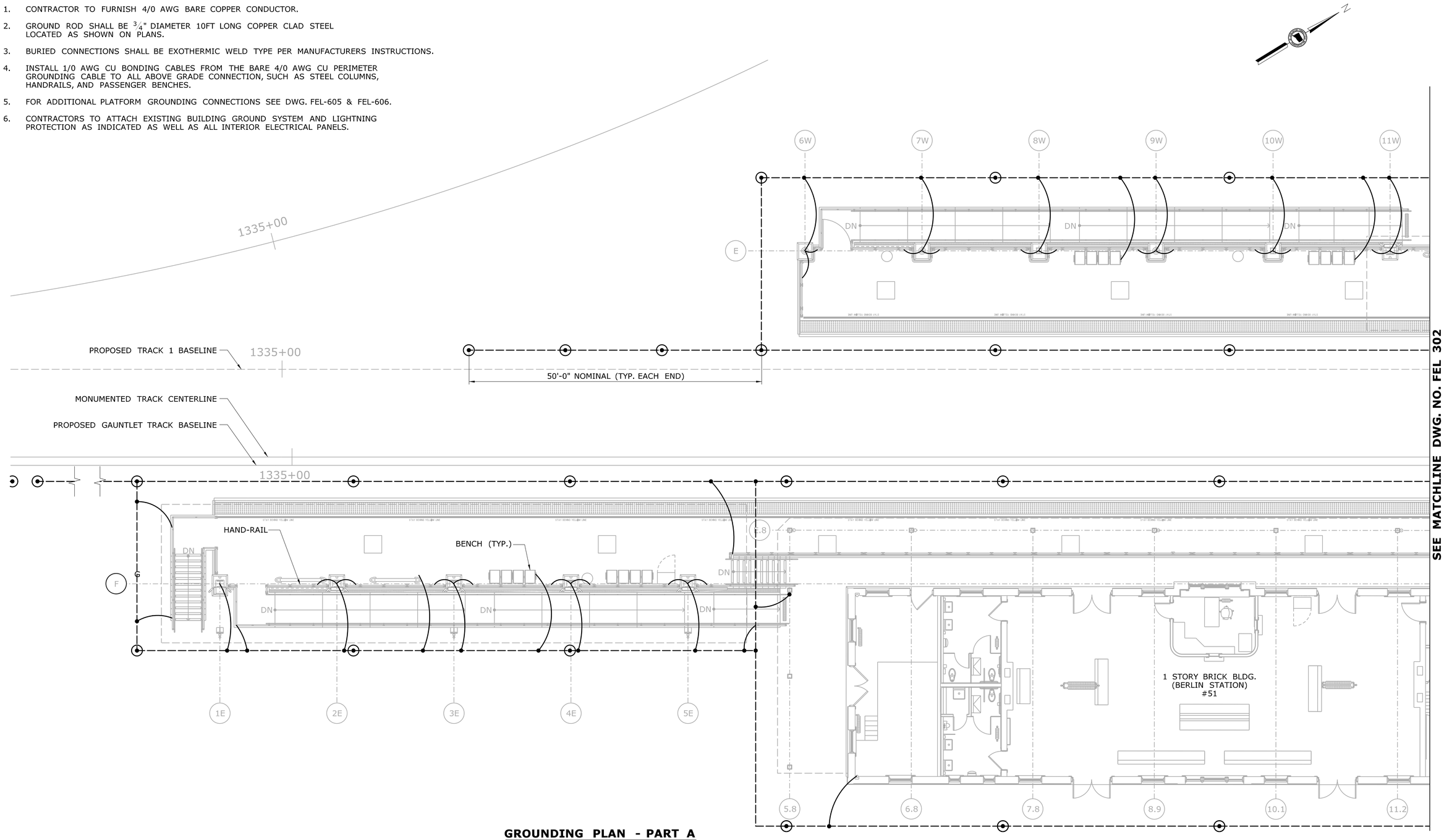
PROJECT NO. **170-3155**

DRAWING NO. **FEL-106**

SHEET NO. **01.13.037**

NOTES:

1. CONTRACTOR TO FURNISH 4/0 AWG BARE COPPER CONDUCTOR.
2. GROUND ROD SHALL BE $^{3}/_{4}$" DIAMETER 10FT LONG COPPER CLAD STEEL LOCATED AS SHOWN ON PLANS.
3. BURIED CONNECTIONS SHALL BE EXOTHERMIC WELD TYPE PER MANUFACTURERS INSTRUCTIONS.
4. INSTALL 1/0 AWG CU BONDING CABLES FROM THE BARE 4/0 AWG CU PERIMETER GROUNDING CABLE TO ALL ABOVE GRADE CONNECTION, SUCH AS STEEL COLUMNS, HANDRAILS, AND PASSENGER BENCHES.
5. FOR ADDITIONAL PLATFORM GROUNDING CONNECTIONS SEE DWG. FEL-605 & FEL-606.
6. CONTRACTORS TO ATTACH EXISTING BUILDING GROUND SYSTEM AND LIGHTNING PROTECTION AS INDICATED AS WELL AS ALL INTERIOR ELECTRICAL PANELS.



GROUNDING PLAN - PART A

SCALE: $^{1}/_{8}$" = 1'-0"

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: **W. CAREY**

CHECKED BY: **D. NEWMAN**

SCALE: 1/8" = 1'-0"

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296_007_04_FEL_301.dgn

SIGNATURE/ BLOCK:

Hatch Mott MacDonald
Suite 100, North Lobby
400 Blue Hill Drive
Westwood, MA 02090

PROJECT TITLE:
NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR

TOWN: **BERLIN**

DRAWING TITLE:
ELECTRICAL GROUNDING PLATFORM PLAN PART A

PROJECT NO. **170-3155**
DRAWING NO. **FEL-301**
SHEET NO. **01.13.038**

SEE MATCHLINE DWG NO FEL-301

SEE MATCHLINE DWG NO FEL-303

PROPOSED TRACK 1 BASELINE

MONUMENTED TRACK CENTERLINE

PROPOSED GAUNTLET TRACK BASELINE

NEW DRAIN BOND

BENCH (TYP.)

1 STORY BRICK BLDG.
(BERLIN STATION)
#51

CTDOT STORAGE W102

ELEC. ROOM W103

LOBBY W100

ELEC. ROOM E103

TELECOM ROOM E102

ELEC. ROOM E101

LOBBY E100

SNOW MELT EQUIPMENT ROOM E104

CTDOT STORAGE E105

UP

DN

GROUNDING PLAN - PART B

SCALE: 1/8" = 1'-0"

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: **W. CAREY**

CHECKED BY: **D. NEWMAN**

SCALE: 1/8" = 1'-0"

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296_007_04_FEL_302.dgn

SIGNATURE/ BLOCK:

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Suite 100, North Lobby
400 Blue Hill Drive
Westwood, MA 02090

PROJECT TITLE:

NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR

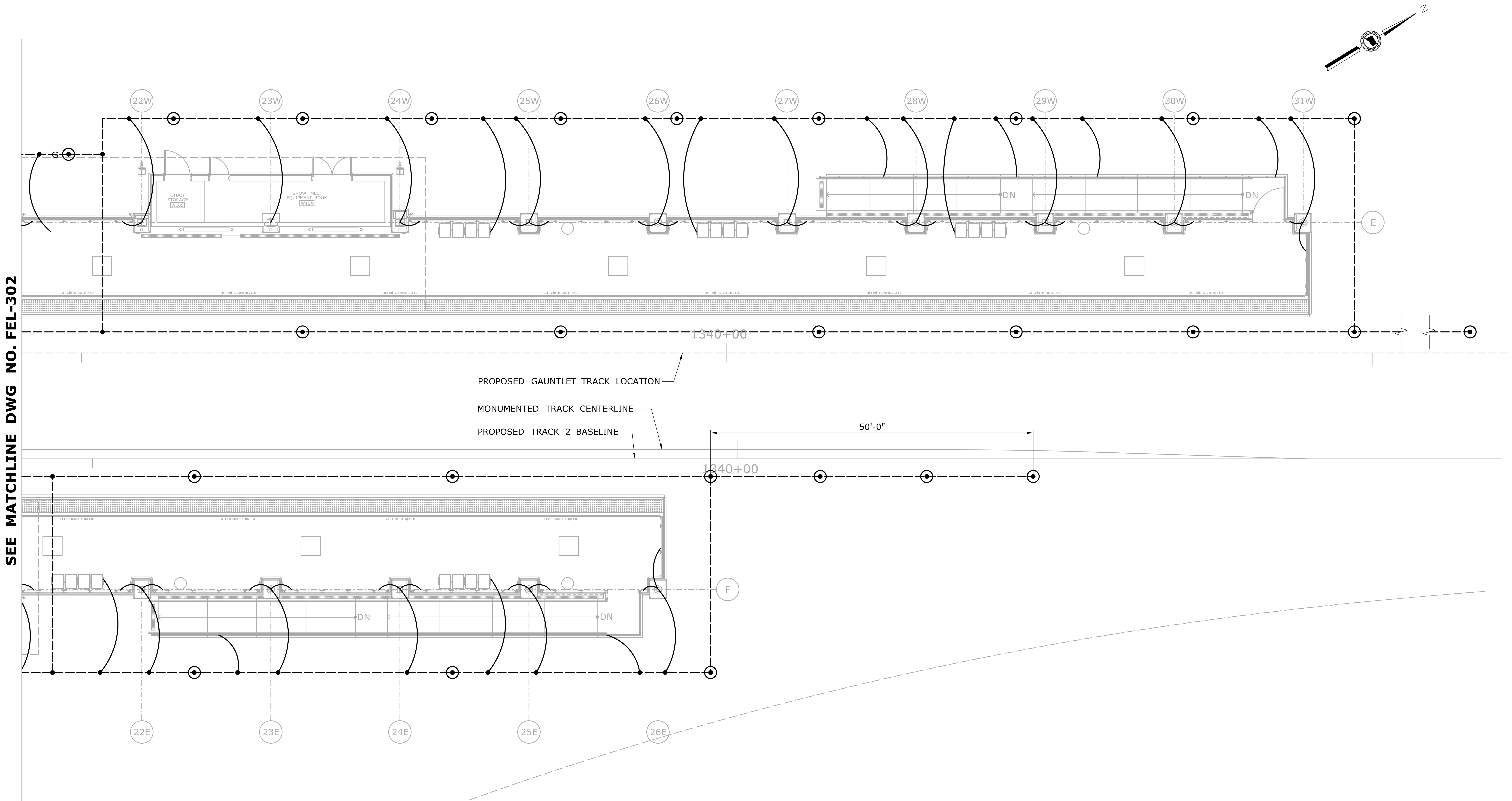
TOWN: **BERLIN**

DRAWING TITLE: **ELECTRICAL GROUNDING PLATFORM PLAN PART B**

PROJECT NO. **170-3155**

DRAWING NO. **FEL-302**

SHEET NO. **01.13.039**



GROUNDING PLAN - PART C

SCALE: $\frac{1}{8}$" = 1'-0"

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: **W. CAREY**
CHECKED BY: **D. NEWMAN**

SCALE: 1/8" = 1'-0"

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296_007__04_FEL__303.dgn

SIGNATURE/ BLOCK:

Hatch Mott MacDonald
Suite 100, North Lobby
400 Blue Hill Drive
Westwood, MA 02090

PROJECT TITLE: **NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR**

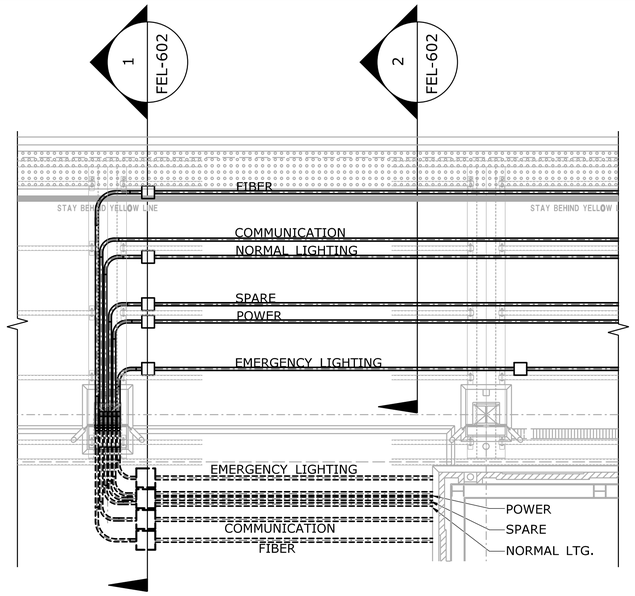
TOWN: **BERLIN**

DRAWING TITLE: **ELECTRICAL GROUNDING PLATFORM PLAN PART C**

PROJECT NO. **170-3155**

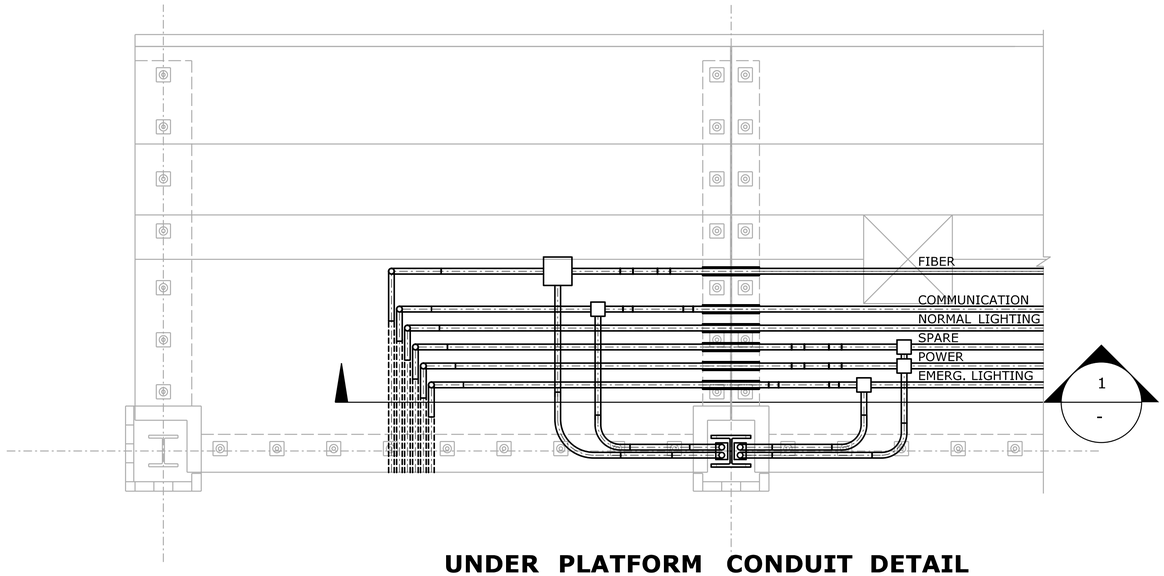
DRAWING NO. **FEL-303**

SHEET NO. **01.13.040**



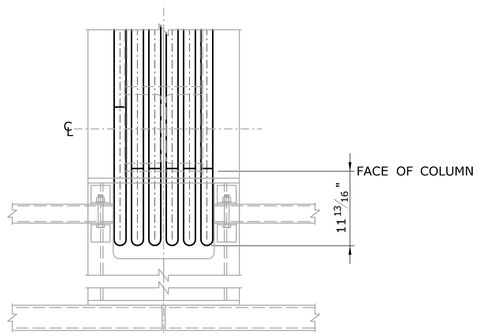
TYPICAL CANOPY COLUMN RISER CONDUIT PLAN (SIMILAR FOR COLS. 1E, 14E, 21E, 14W & 24W)

SCALE: 1/4" = 1'-0"



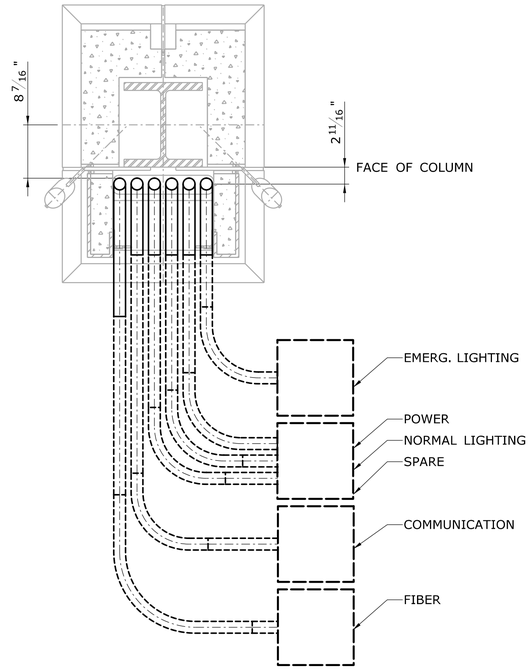
UNDER PLATFORM CONDUIT DETAIL

SCALE: 3/8" = 1'-0"



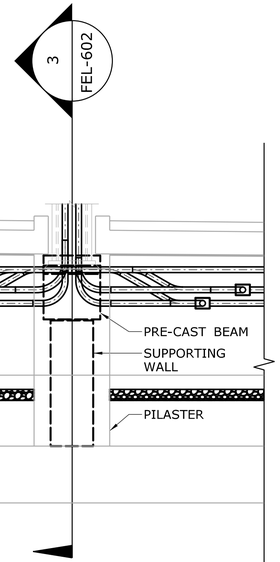
CONDUITS ON TOP OF CANOPY DETAIL

SCALE: 1" = 1'-0"



CONDUITS AT BASE OF COLUMN DETAIL

SCALE: 1" = 1'-0"



1 / - **SECTION**

SCALE: 3/8" = 1'-0"

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: **W. CAREY**

CHECKED BY: **D. NEWMAN**

SCALE: AS NOTED

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296_007_-04_FEL_-601.dgn

SIGNATURE/ BLOCK:

Hatch Mott MacDonald
Suite 100, North Lobby
400 Blue Hill Drive
Westwood, MA 02090

PROJECT TITLE:

NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR

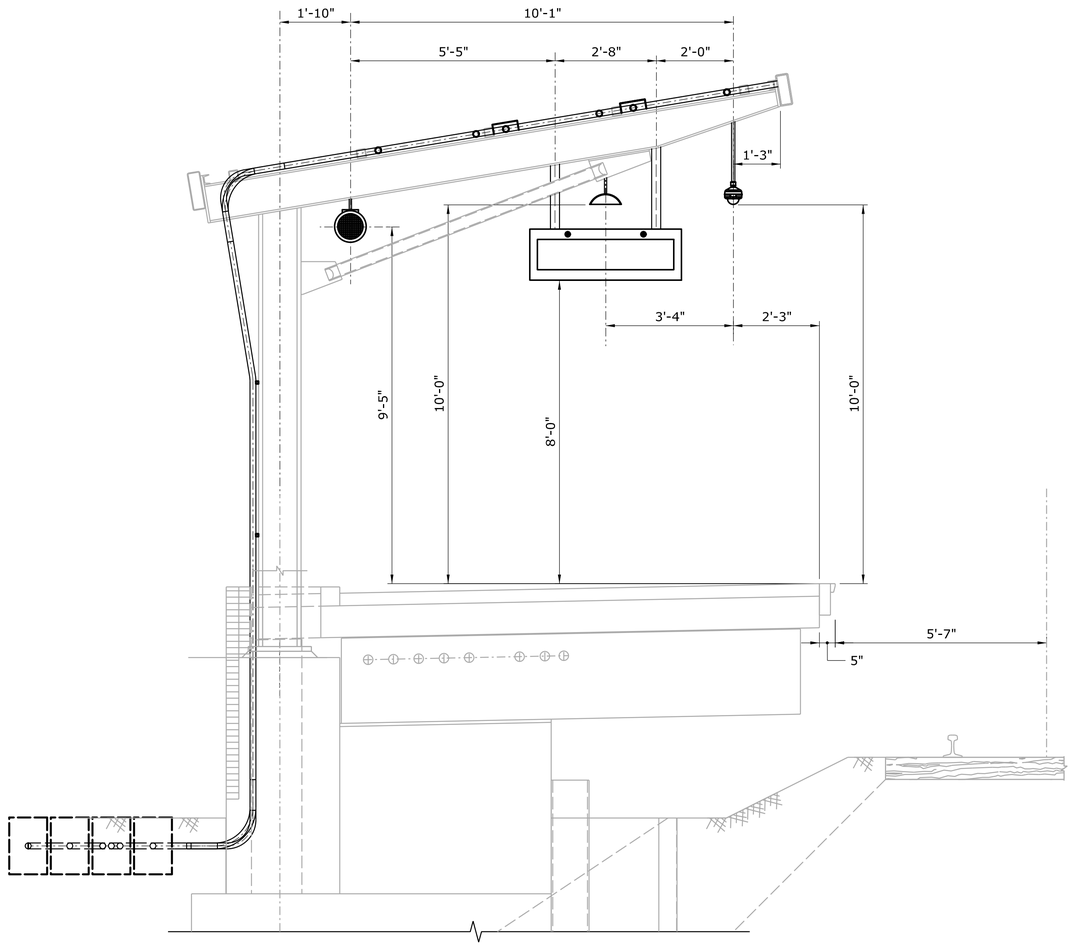
TOWN: **BERLIN**

DRAWING TITLE: **CONDUIT SECTIONS AND DETAILS SHEET 1 OF 3**

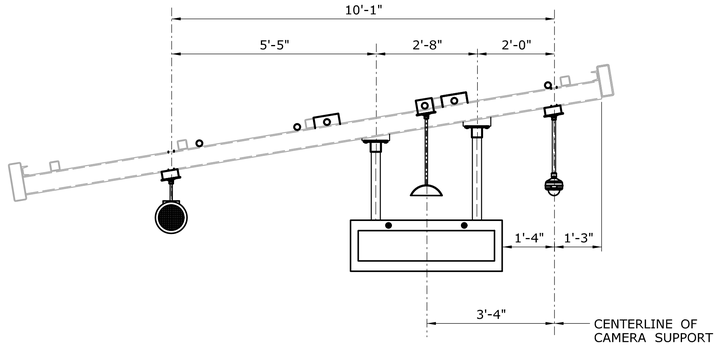
PROJECT NO. **170-3155**

DRAWING NO. **FEL-601**

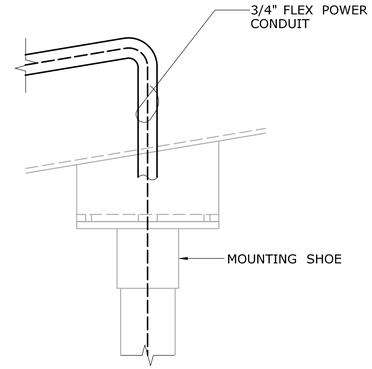
SHEET NO. **01.13.041**



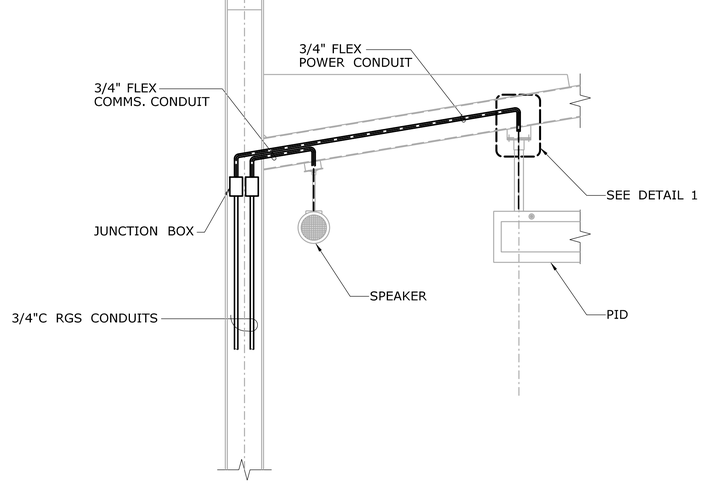
1 FEL-601 **SECTION 1**
SCALE: ½" = 1'-0"



2 FEL-601 **SECTION 2**
SCALE: ½" = 1'-0"



DETAIL 1
NOT TO SCALE



3 FEL-601 **SECTION 3**
SCALE: ½" = 1'-0"

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: **W. CAREY**
CHECKED BY: **D. NEWMAN**
SCALE AS NOTED

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296_007_-_04_FEL_-_602.dgn

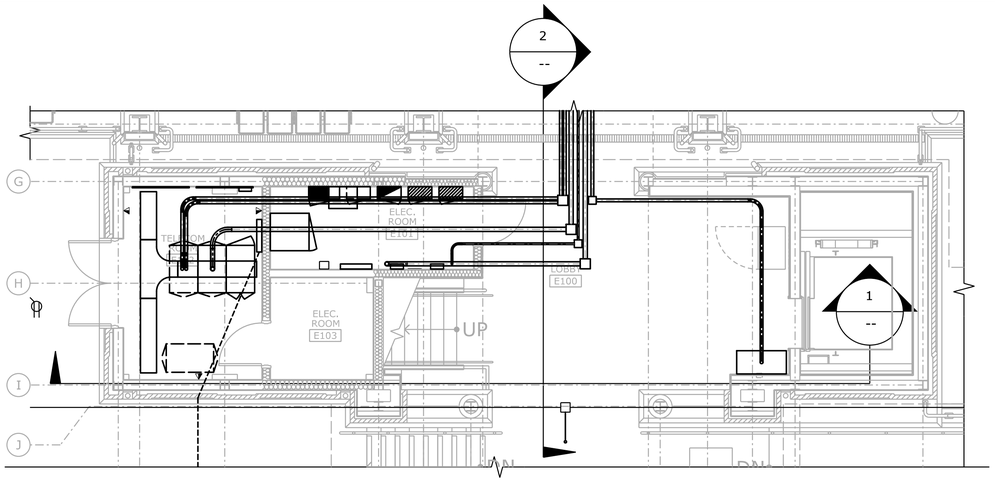
SIGNATURE/ BLOCK:
Hatch Mott MacDonald
Suite 100, North Lobby
400 Blue Hill Drive
Westwood, MA 02090

PROJECT TITLE:
NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR

TOWN: **BERLIN**

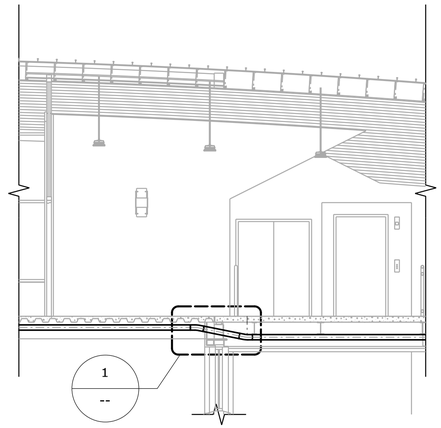
DRAWING TITLE:
CONDUIT SECTIONS AND DETAILS SHEET 2 OF 3

PROJECT NO. **170-3155**
DRAWING NO. **FEL-602**
SHEET NO. **01.13.042**



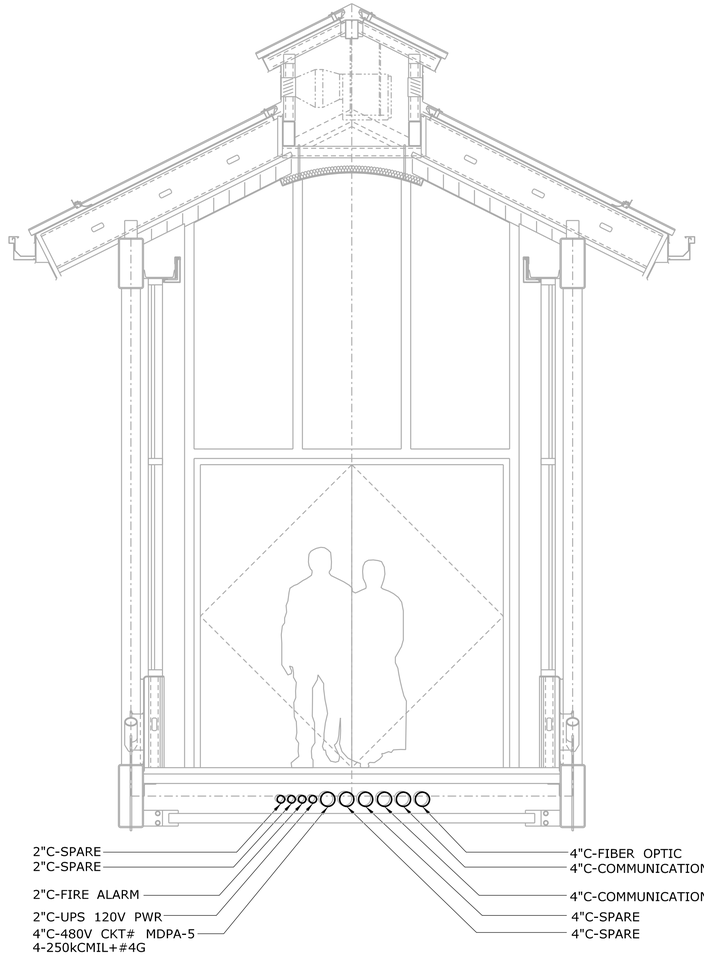
CONDUITS UNDER PEDESTRIAN OVERPASS FOR ALL STATIONS

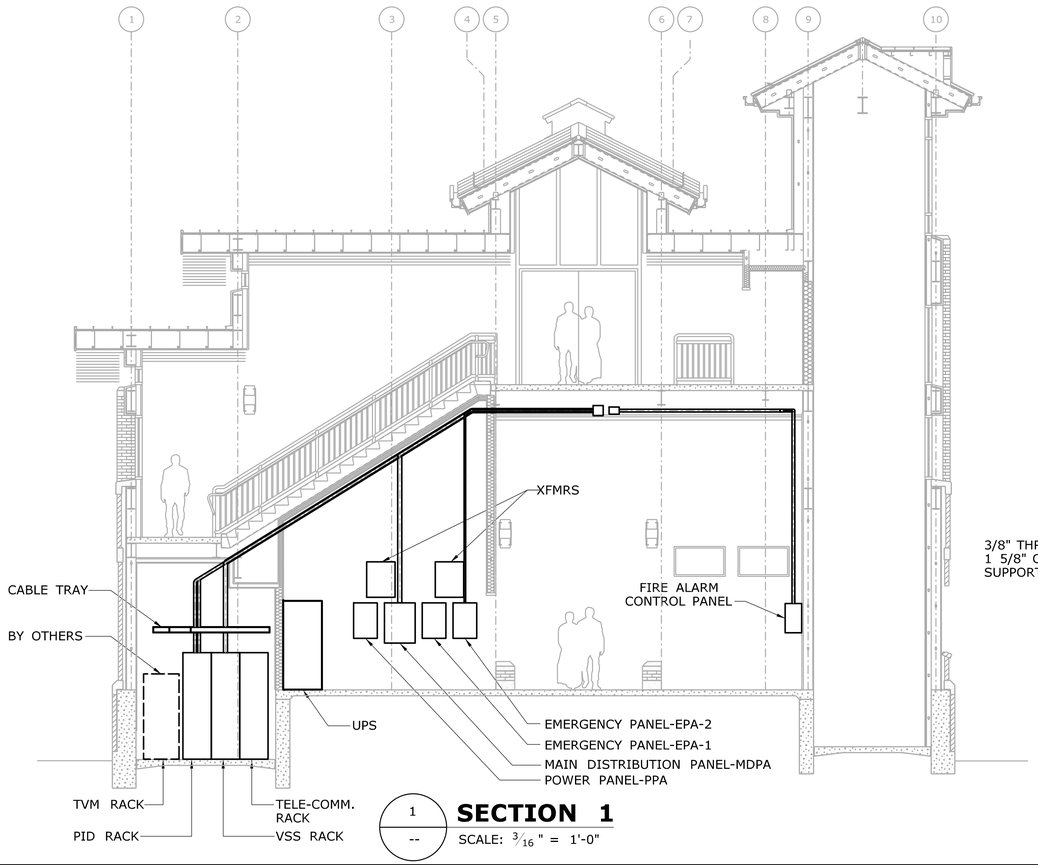
SCALE: 3/16" = 1'-0"



2 -- **SECTION 2**

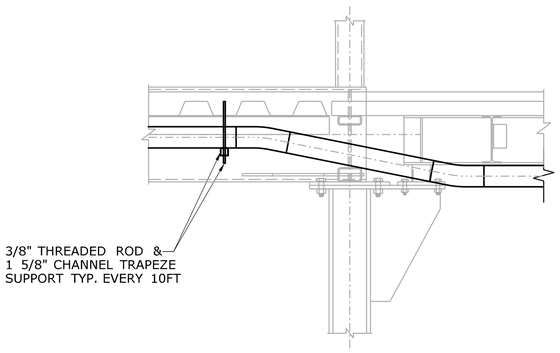
SCALE: 3/16" = 1'-0"





1 -- **SECTION 1**

SCALE: 3/16" = 1'-0"



1 -- **DETAIL 1**

SCALE: 3/4" = 1'-0"

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: **W. CAREY**

CHECKED BY: **D. NEWMAN**

SCALE AS NOTED

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296_007_04_FEL_603.dgn

SIGNATURE/ BLOCK:

Hatch Mott MacDonald
Suite 100, North Lobby
400 Blue Hill Drive
Westwood, MA 02090

PROJECT TITLE:

NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR

TOWN: **BERLIN**

DRAWING TITLE: **CONDUIT SECTIONS AND DETAILS SHEET 3 OF 3**

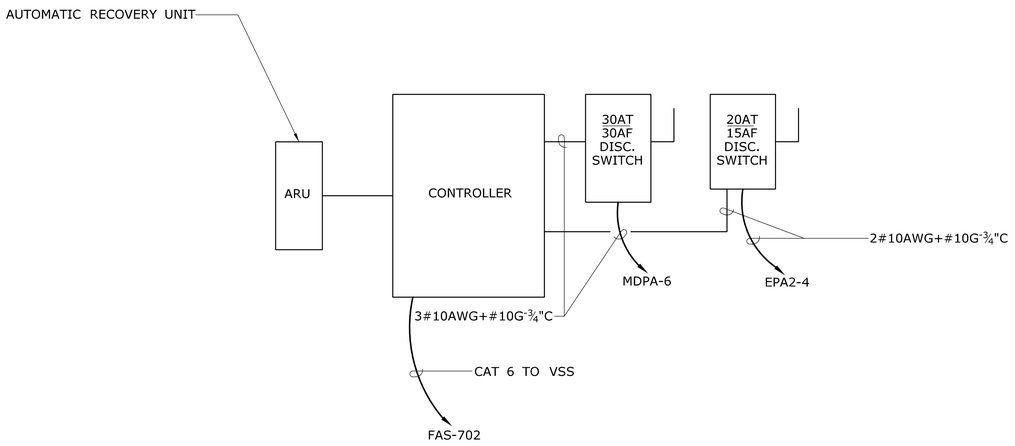
PROJECT NO. **170-3155**

DRAWING NO. **FEL-603**

SHEET NO. **01.13.043**

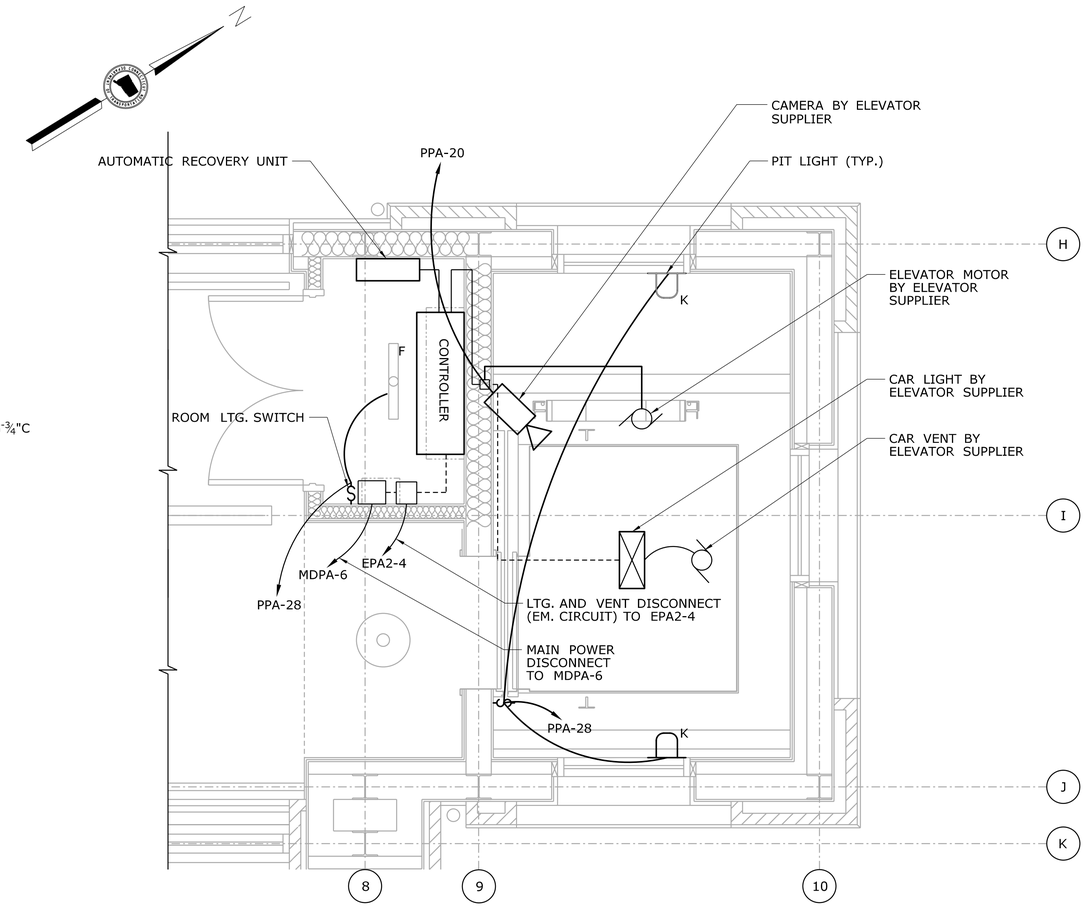
NOTES:

1. WEST TOWER ELEVATOR PLAN IS THE MIRROR IMAGE OF THE EAST TOWER PLAN.



ELEVATOR CONTROLLER RISER DIAGRAM (TYP.)

SCALE: 1" = 1'-0"



ENLARGED ELEVATOR PEDESTRIAN BRIDGE LEVEL PLAN - EAST TOWER (TYP.)

SCALE: ½" = 1'-0"

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 2/26/2014

DESIGNER/DRAFTER: D.CHERBELEATA
CHECKED BY: D. NEWMAN
SCALE AS NOTED

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296_007_-04_FEL_-604.dgn

SIGNATURE/ BLOCK:

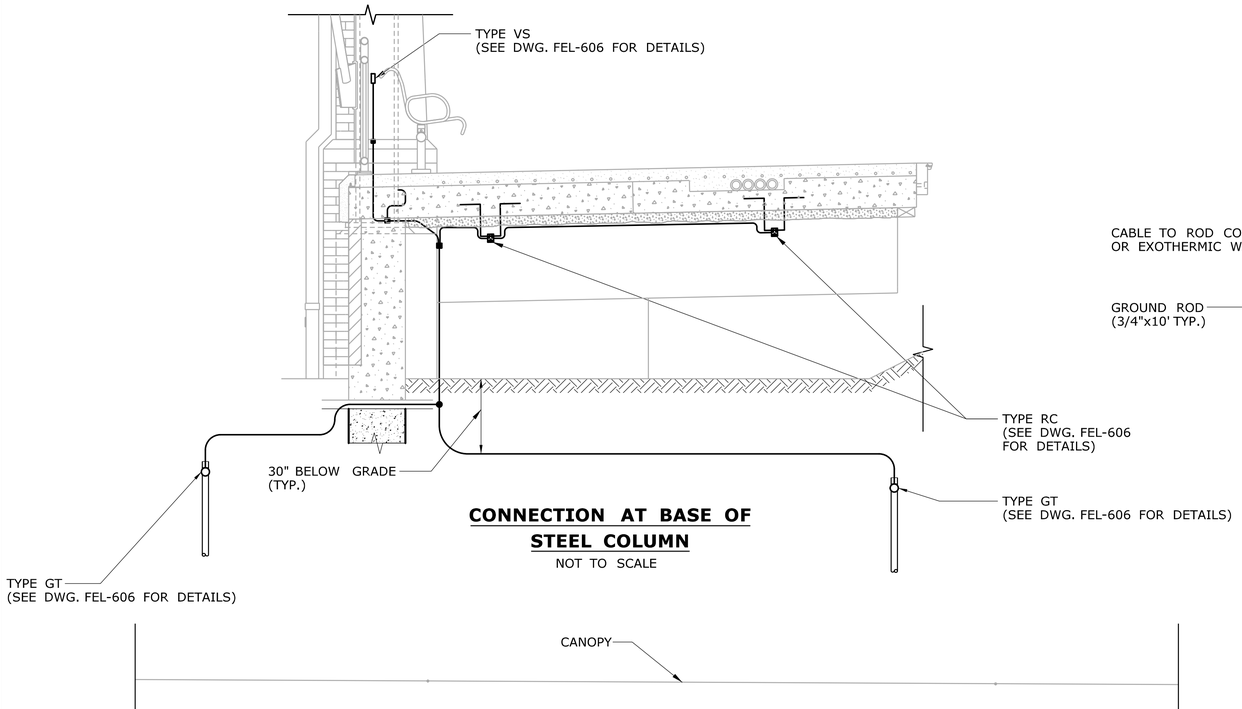
Hatch Mott MacDonald
Suite 100, North Lobby
400 Blue Hill Drive
Westwood, MA 02090

PROJECT TITLE:
NEW HAVEN - HARTFORD
SPRINGFIELD
RAIL CORRIDOR

TOWN: BERLIN

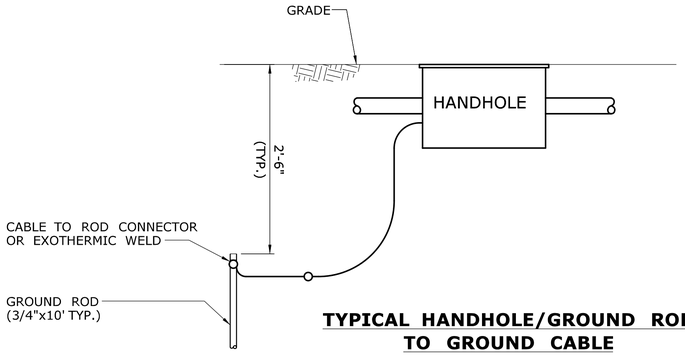
DRAWING TITLE:
POWER PLAN
ENLARGED ELEVATOR

PROJECT NO. 170-3155
DRAWING NO. FEL-604
SHEET NO. 01.13.044



CONNECTION AT BASE OF STEEL COLUMN

NOT TO SCALE

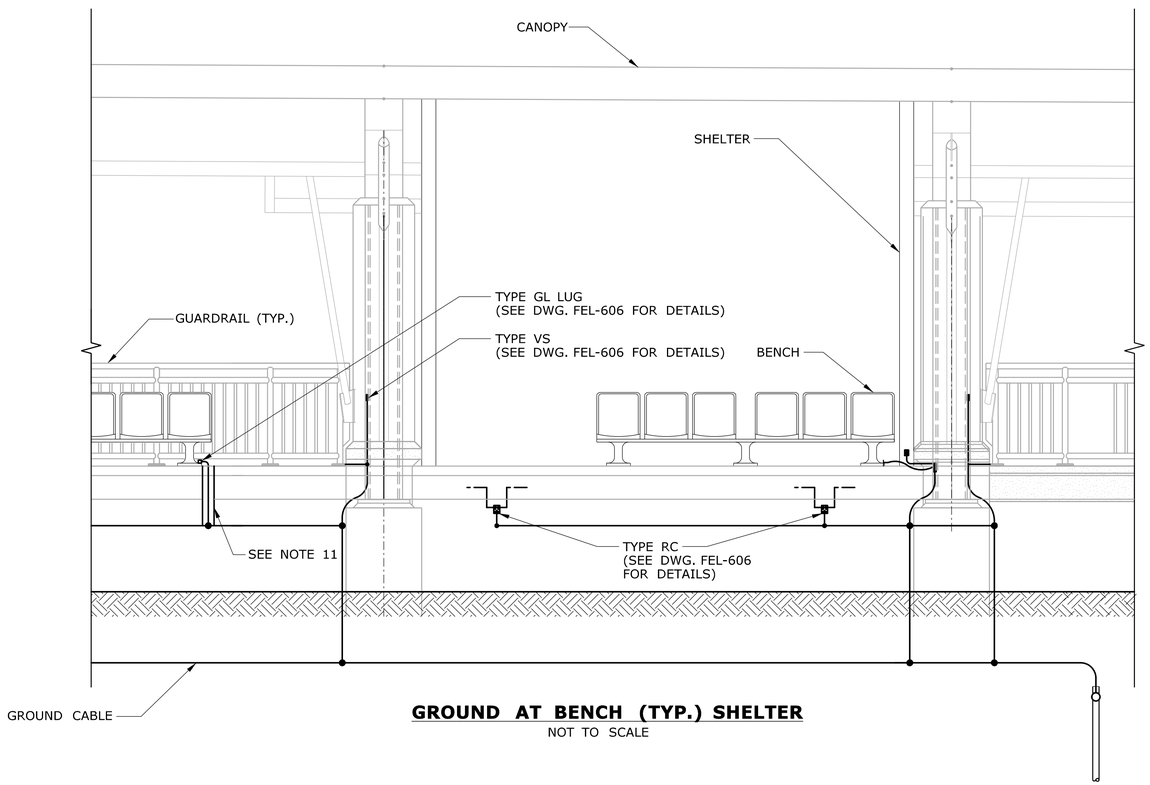


TYPICAL HANDHOLE/GROUND ROD TO GROUND CABLE

NOT TO SCALE

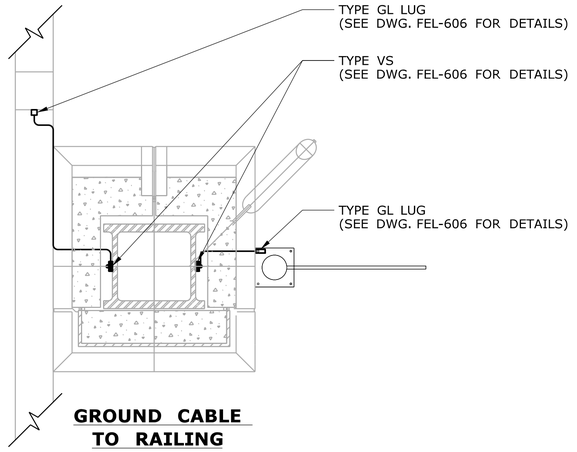
GROUNDING NOTES

1. MAIN GRID CABLE TO BE A MIN. OF 18" BELOW FINISHED FLOORS AND 30" BELOW FINISHED GRADE.
2. GROUND RODS TO BE 10'x$\frac{3}{4}$" DIAM. COPPER CLAD STEEL, DRIVEN TO 2'-6" BELOW FINISHED GRADE.
3. ANY GROUND CONDUCTOR DAMAGED DURING CONSTRUCTION TO BE REPAIRED BEFORE COVERING.
4. GROUND RISERS TO BE A MINIMUM OF 3'-0" ABOVE FINISHED GRADE UNLESS OTHERWISE NOTED.
5. GROUND RISERS TO STUB-UP THRU A SCH 40 PVC SLEEVE TO PREVENT PHYSICAL DAMAGE
6. RESISTANCE NOT TO EXCEED 2 OHMS
7. ALL GROUND CONDUCTORS TO BE SOFT DRAWN STRANDED BARE COPPER.
8. ALL BURIED CONNECTIONS TO BE EXOTHERMIC (CADWELD) TYPE. BUILDING STEEL CONNECTIONS TO BE (CADWELD) TYPE. EXPOSED CONNECTIONS, SUCH AS TO SWITCHGEAR, MOTORS, GENERATORS, ETC., TO BE MECHANICAL COMPRESSION TYPE.
9. GROUND CONDUCTORS SHALL NOT BE INSTALLED IN ANY WAY THAT WOULD INTERFERE WITH EQUIPMENT REMOVAL.
10. SIZES: MAIN GRID: #4/0 AWG
    STRUCTURAL STEEL: 1-#4/0 AWG
    NON-STRUCTURAL STEEL: 1-#1/0 AWG
11. CONTRACTOR MUST COORDINATE LOCATION OF SNOW MELT PIPING AND SLEEVES PRIOR TO DRILLING THROUGH PLATFORMS.



GROUND AT BENCH (TYP.) SHELTER

NOT TO SCALE



GROUND CABLE TO RAILING

NOT TO SCALE

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: **W. CAREY**

CHECKED BY: **D. NEWMAN**

NOT TO SCALE

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296_007_.04_FEL_.605.dgn

SIGNATURE/ BLOCK:

Hatch Mott MacDonald
Suite 100, North Lobby
400 Blue Hill Drive
Westwood, MA 02090

PROJECT TITLE:
NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR

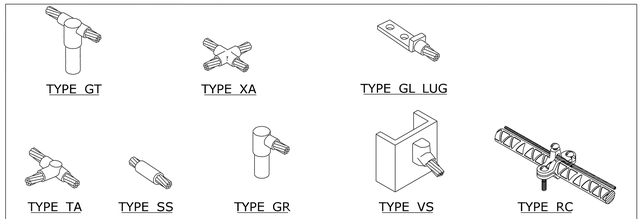
TOWN: **BERLIN**

DRAWING TITLE:
ELEC. GROUNDING DETAILS 1 OF 2

PROJECT NO. **170-3155**

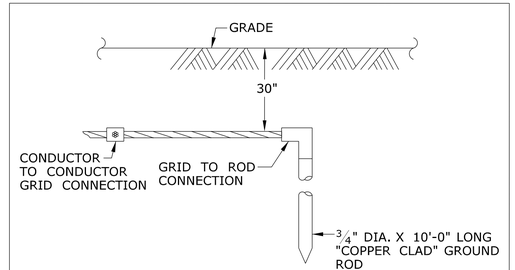
DRAWING NO. **FEL-605**

SHEET NO. **01.13.045**

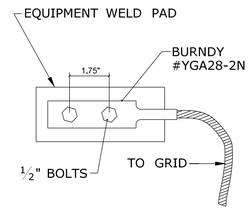


CADWELD BILL OF MATERIALS		
TYPE	CATALOG#	DESCRIPTION
TA	TAC-2Q2Q, WELD METAL #150	HORIZONTAL TEE
VS	VSC-2Q, WELD METAL #115	VERTICAL STEEL CONNECTION
SS	SSC-2Q, WELD METAL #90	IN-LINE SPLICE CONNECTION
GT	GTC-182Q, WELD METAL #115	CABLE TO GROUND ROD
RC	#RC100	REBAR CLAMP

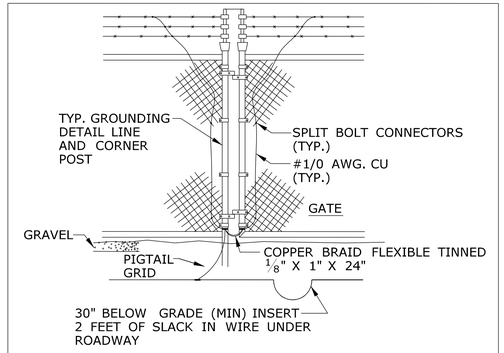
CADWELD DETAILS



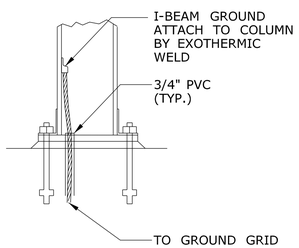
GROUNDING ROD DETAIL



TYPICAL EQUIPMENT GROUND PAD



CHAIN LINK FENCE GROUNDING AT GATE



TYPICAL COLUMN WELD GROUNDING DETAIL

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: **W. CAREY**

CHECKED BY: **D. NEWMAN**

NOT TO SCALE

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296_007_-04_FEL_-606.dgn

SIGNATURE/ BLOCK:

Hatch Mott MacDonald
Suite 100, North Lobby
400 Blue Hill Drive
Westwood, MA 02090

PROJECT TITLE:
NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR

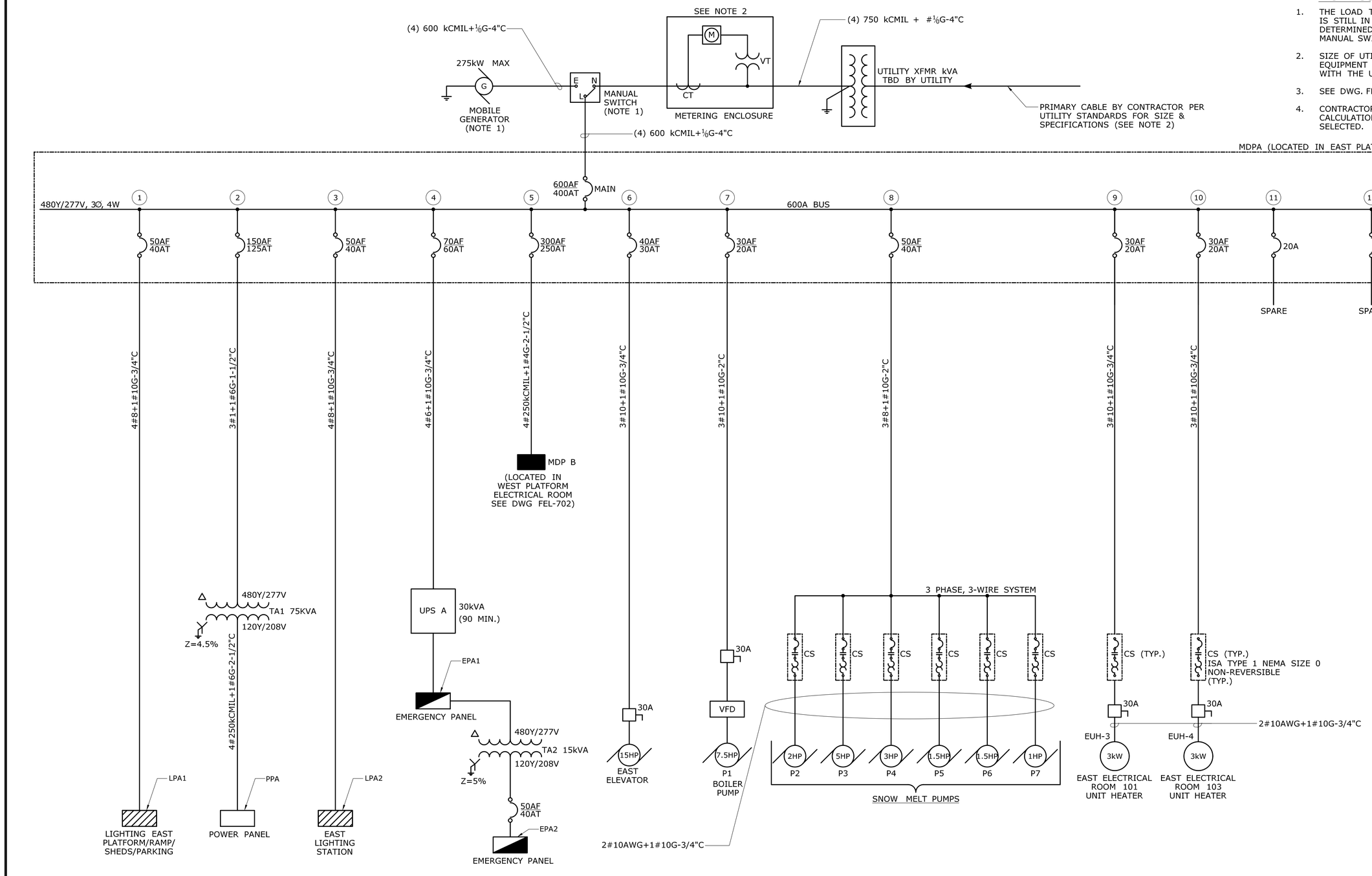
TOWN: **BERLIN**

DRAWING TITLE:
ELEC. GROUNDING DETAILS 2 of 2

PROJECT NO. **170-3155**
DRAWING NO. **FEL-606**
SHEET NO. **01.13.046**

NOTES:

1. THE LOAD TO BE COVERED BY THE GENERATOR IS STILL IN DISCUSSION, FINAL SIZE TO BE DETERMINED FOR BOTH GENERATOR AND MANUAL SWITCH.
2. SIZE OF UTILITY TRANSFORMER AND METERING EQUIPMENT TO BE DETERMINED AFTER DISCUSSION WITH THE UTILITY COMPANY.
3. SEE DWG. FLI-801, 802 & 803 FOR PANEL SCHEDULES.
4. CONTRACTOR TO PROVIDE SHORT CIRCUIT CALCULATIONS AFTER EQUIPMENT HAS BEEN SELECTED.



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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: **D.CHERBELEATA**
CHECKED BY: **D. NEWMAN**
SCALE AS NOTED

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296_007_-_04_FEL_-_701.dgn

SIGNATURE/ BLOCK:

Hatch Mott MacDonald
Suite 100, North Lobby
400 Blue Hill Drive
Westwood, MA 02090

PROJECT TITLE:
NEW HAVEN-HARTFORD SPRINGFIELD RAIL CORRIDOR

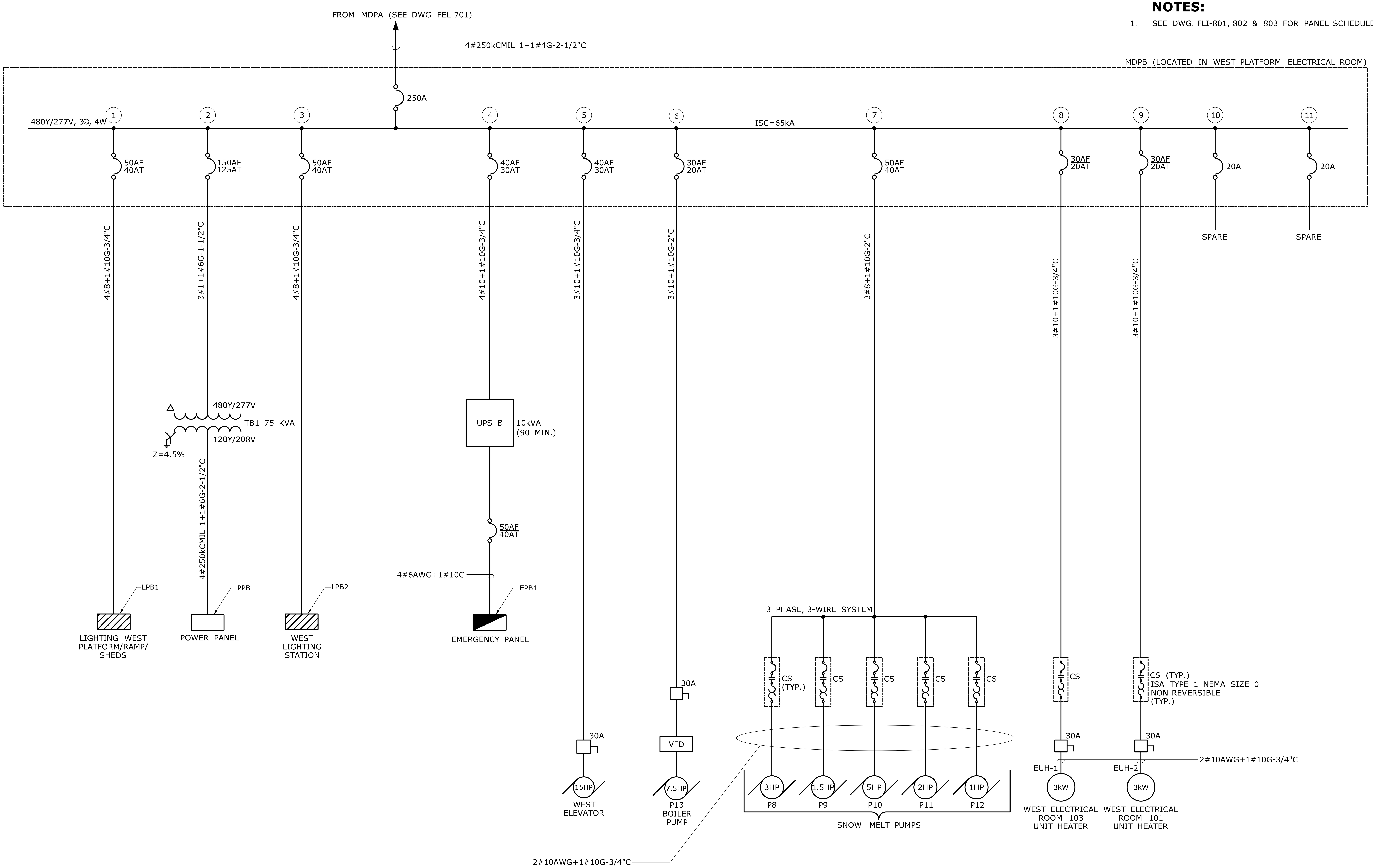
TOWN: **BERLIN**

DRAWING TITLE:
GENERAL ARRANGEMENT ONE-LINE DIAG. MDPA

PROJECT NO. **170-3155**
DRAWING NO. **FEL-701**
SHEET NO. **01.13.047**

NOTES:

1. SEE DWG. FLI-801, 802 & 803 FOR PANEL SCHEDULES.



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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: **D. CHERBELEATA**

CHECKED BY: **D. NEWMAN**

SCALE AS NOTED

STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296_007__04_FEL__702.dgn

SIGNATURE/ BLOCK:

Hatch Mott MacDonald
Suite 100, North Lobby
400 Blue Hill Drive
Westwood, MA 02090

PROJECT TITLE: **NEW HAVEN-HARTFORD SPRINGFIELD RAIL CORRIDOR**

TOWN: **BERLIN**

DRAWING TITLE: **GENERAL ARRANGEMENT ONE-LINE DIAGRAM-MDPB**

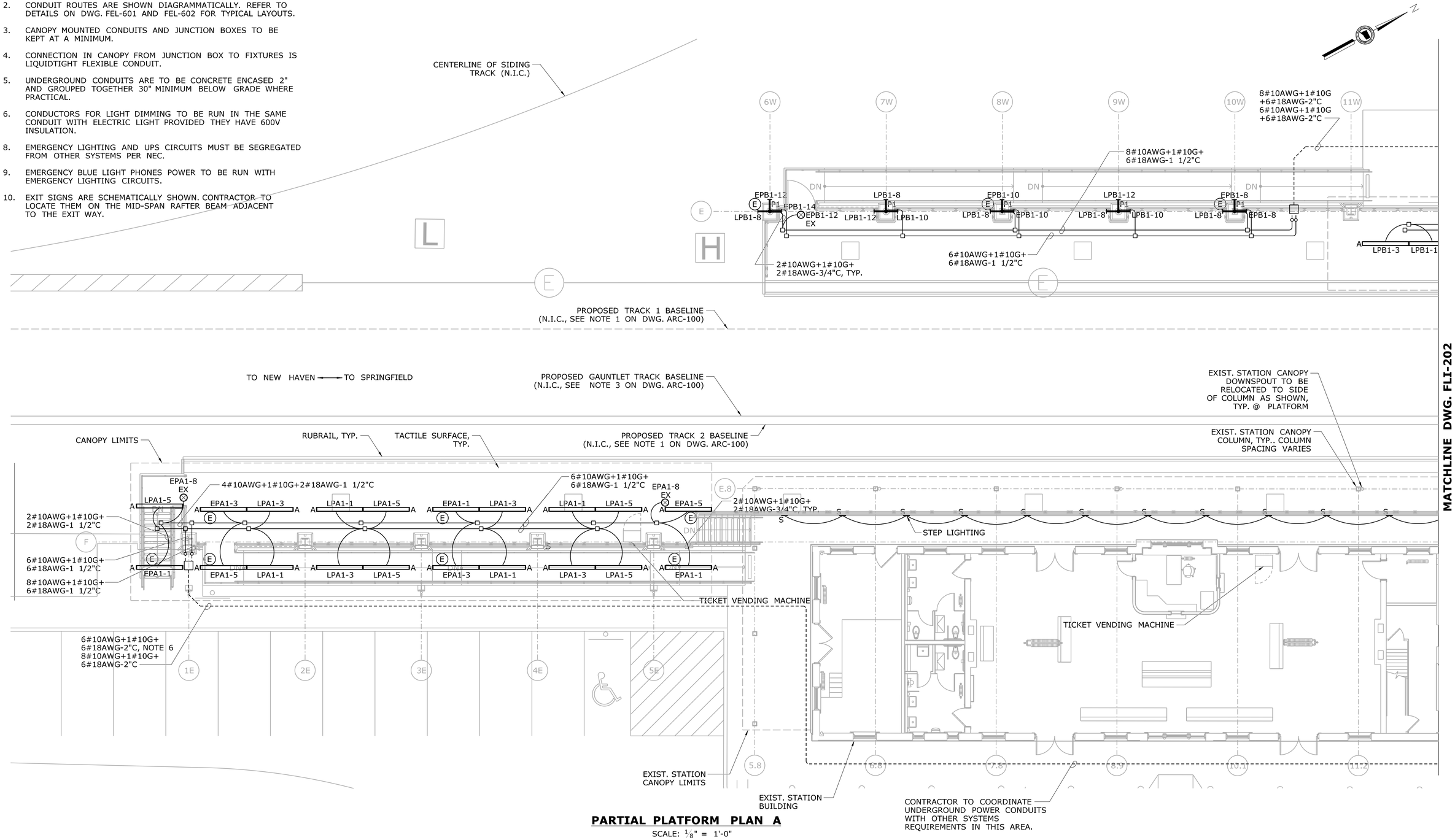
PROJECT NO. **170-3155**

DRAWING NO. **FEL-702**

SHEET NO. **01.13.048**

NOTES:

1. CONDUIT SIZES ARE PER NEC 2011 WITH ALLOWANCE FOR EXTRA CONDUCTORS.
2. CONDUIT ROUTES ARE SHOWN DIAGRAMMATICALLY. REFER TO DETAILS ON DWG. FEL-601 AND FEL-602 FOR TYPICAL LAYOUTS.
3. CANOPY MOUNTED CONDUITS AND JUNCTION BOXES TO BE KEPT AT A MINIMUM.
4. CONNECTION IN CANOPY FROM JUNCTION BOX TO FIXTURES IS LIQUIDTIGHT FLEXIBLE CONDUIT.
5. UNDERGROUND CONDUITS ARE TO BE CONCRETE ENCASED 2" AND GROUPED TOGETHER 30" MINIMUM BELOW GRADE WHERE PRACTICAL.
6. CONDUCTORS FOR LIGHT DIMMING TO BE RUN IN THE SAME CONDUIT WITH ELECTRIC LIGHT PROVIDED THEY HAVE 600V INSULATION.
8. EMERGENCY LIGHTING AND UPS CIRCUITS MUST BE SEGREGATED FROM OTHER SYSTEMS PER NEC.
9. EMERGENCY BLUE LIGHT PHONES POWER TO BE RUN WITH EMERGENCY LIGHTING CIRCUITS.
10. EXIT SIGNS ARE SCHEMATICALLY SHOWN. CONTRACTOR TO LOCATE THEM ON THE MID-SPAN RAFTER BEAM ADJACENT TO THE EXIT WAY.



PARTIAL PLATFORM PLAN A

SCALE: 1/8" = 1'-0"

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: D.CHERBELEATA
CHECKED BY: D. NEWMAN
SCALE: 1/8" = 1'-0"

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA..CGR..CPS..0170-2296..007...04..FLI...201.dgn

SIGNATURE/ BLOCK:

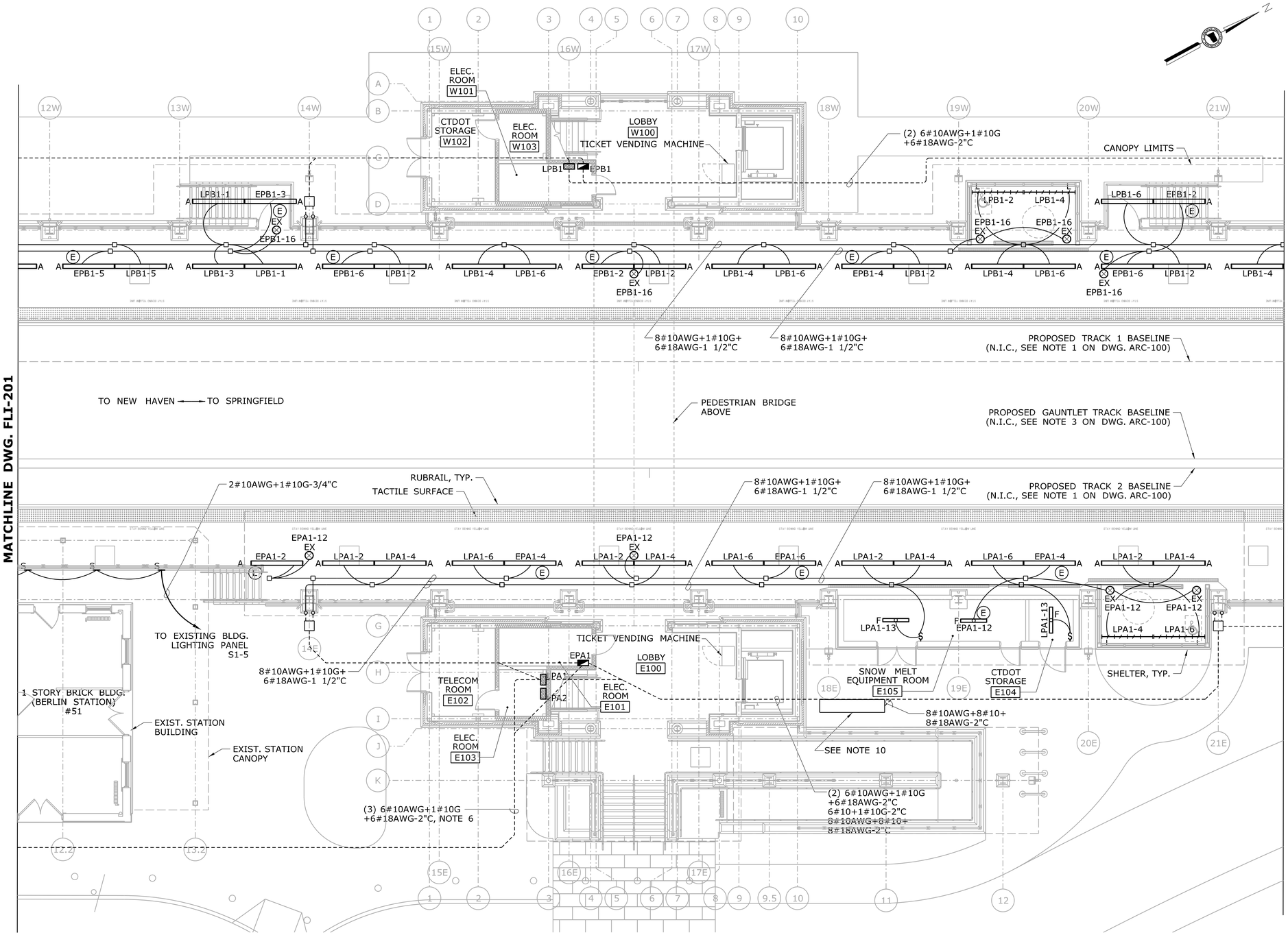
Hatch Mott MacDonald
Suite 100, North Lobby
400 Blue Hill Drive
Westwood, MA 02090

PROJECT TITLE:
NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR

TOWN: **BERLIN**

DRAWING TITLE:
LIGHTING PLAN PARTIAL PLAT. PLAN A

PROJECT NO. **170-3155**
DRAWING NO. **FLI-201**
SHEET NO. **01.13.049**



PARTIAL PLATFORM PLAN B

SCALE: 1/8" = 1'-0"

12

NOTES:

1. CONDUIT SIZES ARE PER NEC 2011 WITH ALLOWANCE FOR EXTRA CONDUCTORS.
2. CONDUIT ROUTES ARE SHOWN DIAGRAMMATICALLY. REFER TO DETAILS ON DWG. FEL-601 AND FEL-602 FOR TYPICAL LAYOUTS.
3. CANOPY MOUNTED CONDUITS AND JUNCTION BOXES TO BE KEPT AT A MINIMUM.
4. CONNECTION IN CANOPY FROM JUNCTION BOX TO FIXTURES IS LIQUIDTIGHT FLEXIBLE CONDUIT.
5. UNDERGROUND CONDUITS ARE TO BE CONCRETE ENCASED 2" AND GROUPED TOGETHER 30" MINIMUM BELOW GRADE WHERE PRACTICAL.
6. CONDUCTORS FOR LIGHT DIMMING TO BE RUN IN THE SAME CONDUIT WITH ELECTRIC LIGHT PROVIDED THEY HAVE 600V INSULATION.
8. EMERGENCY LIGHTING AND UPS CIRCUITS MUST BE SEGREGATED FROM OTHER SYSTEMS PER NEC.
9. EMERGENCY BLUE LIGHT PHONES POWER TO BE RUN WITH EMERGENCY LIGHTING CIRCUITS.
10. SEE DWG. FLI-204 FOR RAMP ILLUMINATION POWER SUPPLY.
11. EXIT SIGNS ARE SCHEMATICALLY SHOWN. CONTRACTOR TO LOCATE THEM ON THE MID-SPAN RAFTER BEAM ADJACENT TO THE EXIT WAY.

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: **D.CHERBELEATA**
CHECKED BY: **D. NEWMAN**
SCALE: 1/8" = 1'-0"

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296_007_04_FLI_202.dgn

SIGNATURE/ BLOCK:

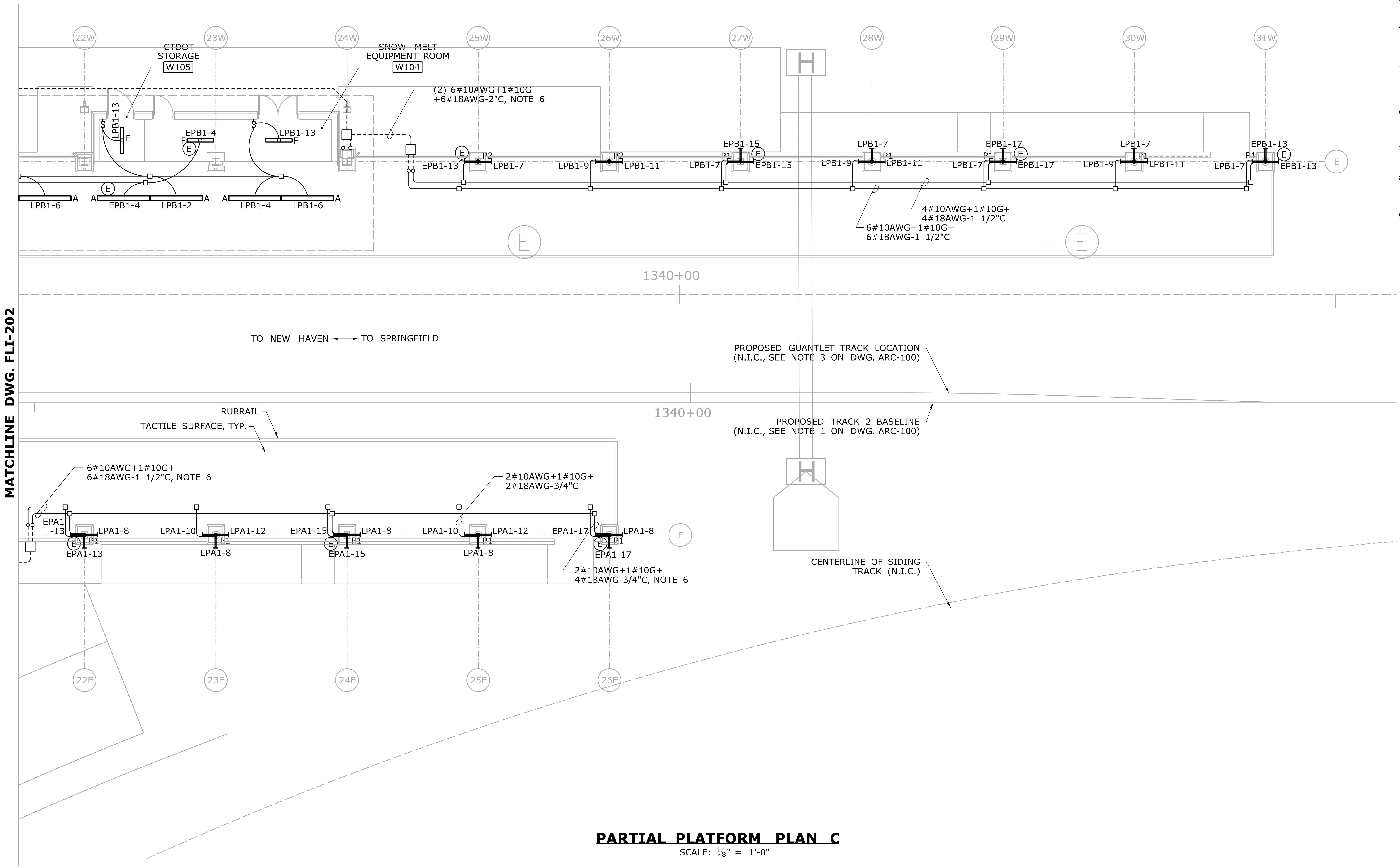
Hatch Mott MacDonald
Suite 100, North Lobby
400 Blue Hill Drive
Westwood, MA 02090

PROJECT TITLE:
NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR

TOWN: **BERLIN**

DRAWING TITLE:
LIGHTING PLAN PARTIAL PART. PLAN B

PROJECT NO. **170-3155**
DRAWING NO. **FLI-202**
SHEET NO. **01.13.050**



PARTIAL PLATFORM PLAN C

SCALE: $\frac{1}{8}$" = 1'-0"

NOTES:

1. CONDUIT SIZES ARE PER NEC 2011 WITH ALLOWANCE FOR EXTRA CONDUCTORS.
2. CONDUIT ROUTES ARE SHOWN DIAGRAMMATICALLY. REFER TO DETAILS ON DWG. FEL-601 AND FEL-602 FOR TYPICAL LAYOUTS.
3. CANOPY MOUNTED CONDUITS AND JUNCTION BOXES TO BE KEPT AT A MINIMUM.
4. CONNECTION IN CANOPY FROM JUNCTION BOX TO FIXTURES IS LIQUIDTIGHT FLEXIBLE CONDUIT.
5. UNDERGROUND CONDUITS ARE TO BE CONCRETE ENCASED 2" AND GROUPED TOGETHER 30" MINIMUM BELOW GRADE WHERE PRACTICAL.
6. CONDUCTORS FOR LIGHT DIMMING TO BE RUN IN THE SAME CONDUIT WITH ELECTRIC LIGHT PROVIDED THEY HAVE 600V INSULATION.
7. CONDUIT STUB-UPS TO INTEGRAL POWER SUPPLY IN RAIL POSTS.
8. EMERGENCY LIGHTING AND UPS CIRCUITS MUST BE SEGREGATED FROM OTHER SYSTEMS PER NEC.
9. EMERGENCY BLUE LIGHT PHONES POWER TO BE RUN WITH EMERGENCY LIGHTING CIRCUITS.
10. EXIT SIGNS ARE SCHEMATICALLY SHOWN. CONTRACTOR TO LOCATE THEM ON THE MID-SPAN RAFTER TO THE EXIT WAY.

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: **D.CHERBELEATA**

CHECKED BY: **D. NEWMAN**

SCALE: 1/8" = 1'-0"

STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296_007__04_FLI__203.dgn

SIGNATURE/ BLOCK:

Hatch Mott MacDonald
Suite 100, North Lobby
400 Blue Hill Drive
Westwood, MA 02090

PROJECT TITLE: **NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR**

TOWN: **BERLIN**

DRAWING TITLE: **LIGHTING PLAN PARTIAL PLAT. PLAN C**

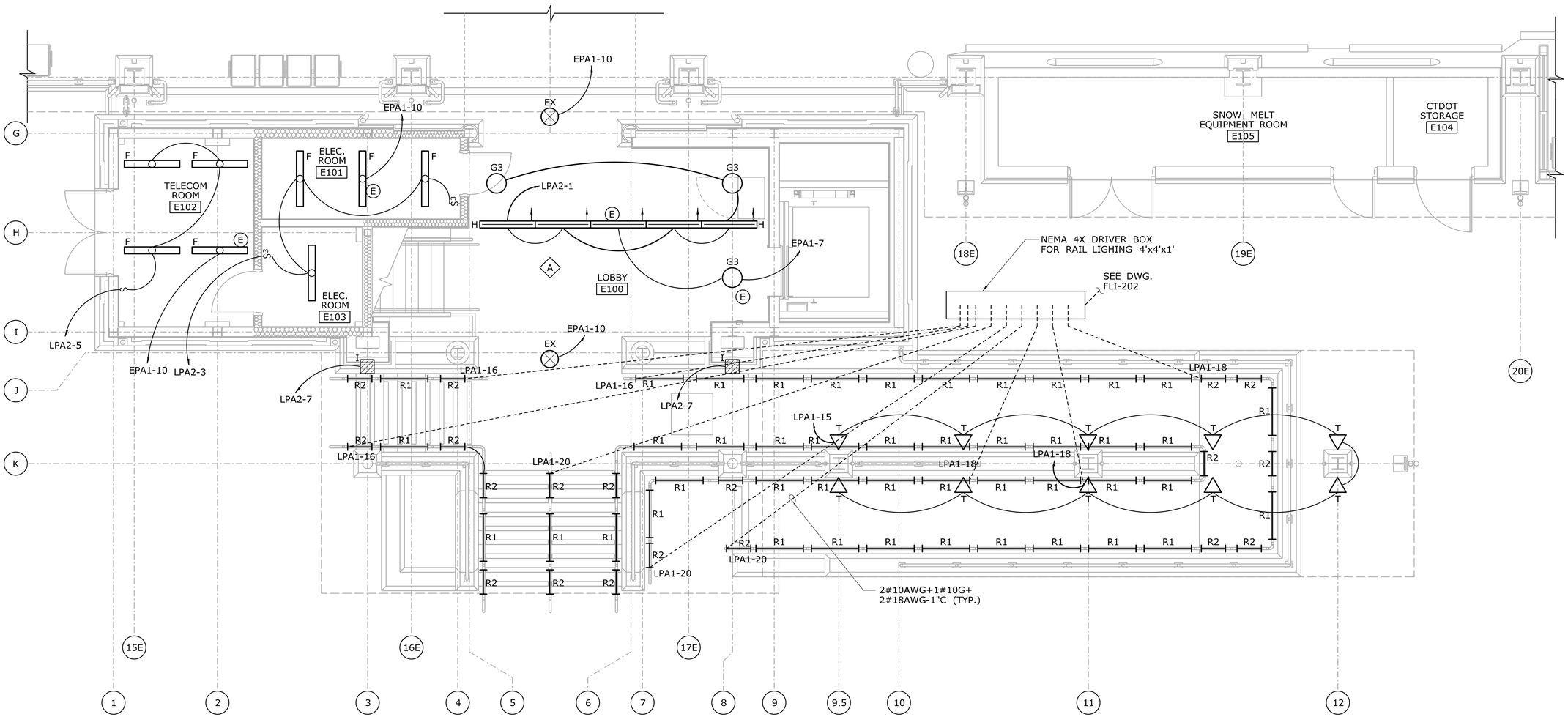
PROJECT NO. **170-3155**

DRAWING NO. **FLI-203**

SHEET NO. **01.13.051**

NOTES:

1. FIELD MEASUREMENTS ARE REQUIRED FOR FINAL DESIGN OF RAMP FIXTURES, FULL LENGTH TO BE ILLUMINATED.
2. SEE DWG. FLI-901 FOR LIGHTING FIXTURE SCHEDULE.



STATION GROUND LEVEL - EAST

SCALE: 1/4" = 1'-0"

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: D.CHERBELEATA
CHECKED BY: D. NEWMAN
SCALE: 1/4" = 1'-0"

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA..CGR..CPS..0170-2296..007_..04..FLI_..204.dgn

SIGNATURE/ BLOCK:

Hatch Mott MacDonald
Suite 100, North Lobby
400 Blue Hill Drive
Westwood, MA 02090

PROJECT TITLE:
NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR

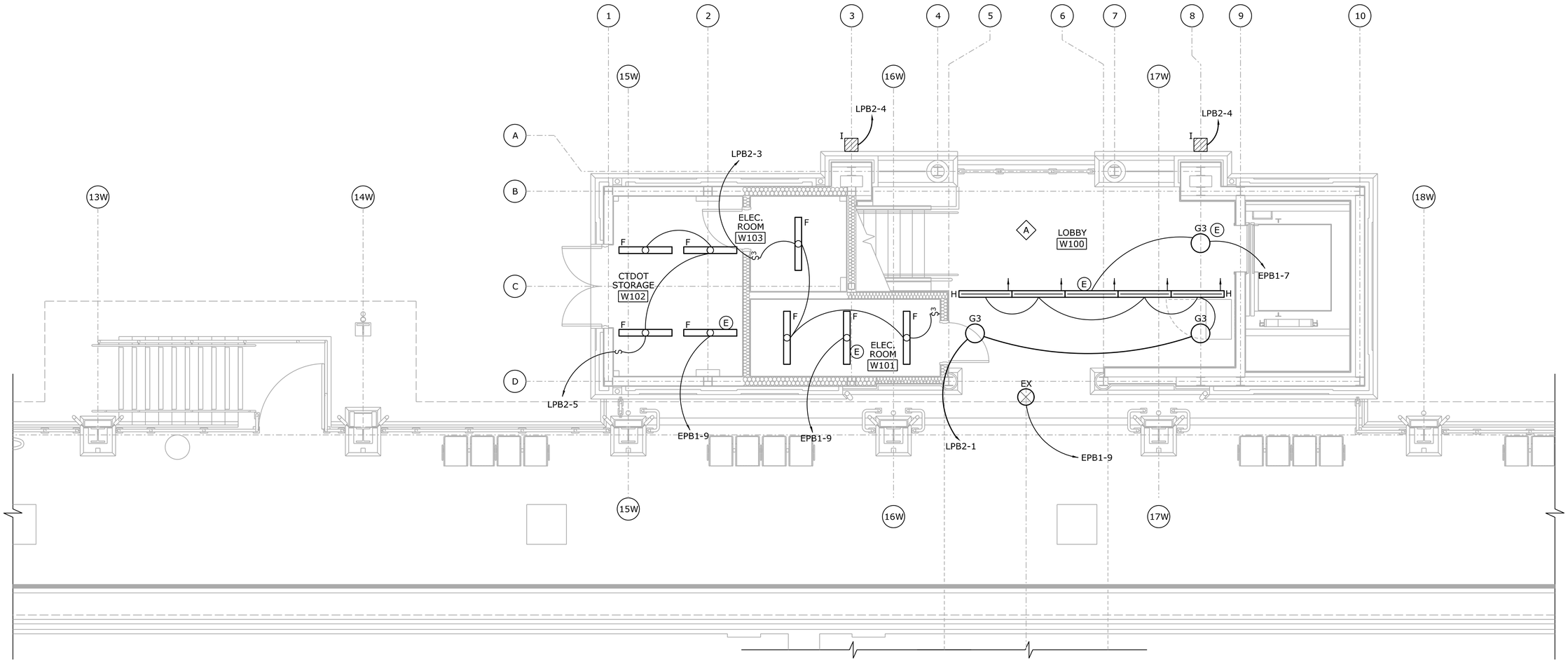
TOWN: **BERLIN**

DRAWING TITLE:
LIGHTING PLAN STA. GRND. LEVEL-EAST

PROJECT NO. **170-3155**
DRAWING NO. **FLI-204**
SHEET NO. **01.13.052**

NOTES:

1. SEE DWG. FLI-901 FOR LIGHTING FIXTURE SCHEDULE.



STATION GROUND LEVEL - WEST
SCALE: 1/4" = 1'-0"

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: D.CHERBELEATA
CHECKED BY: D. NEWMAN
SCALE: 1/4" = 1'-0"

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296_007_04_FLI_205.dgn

SIGNATURE/ BLOCK:

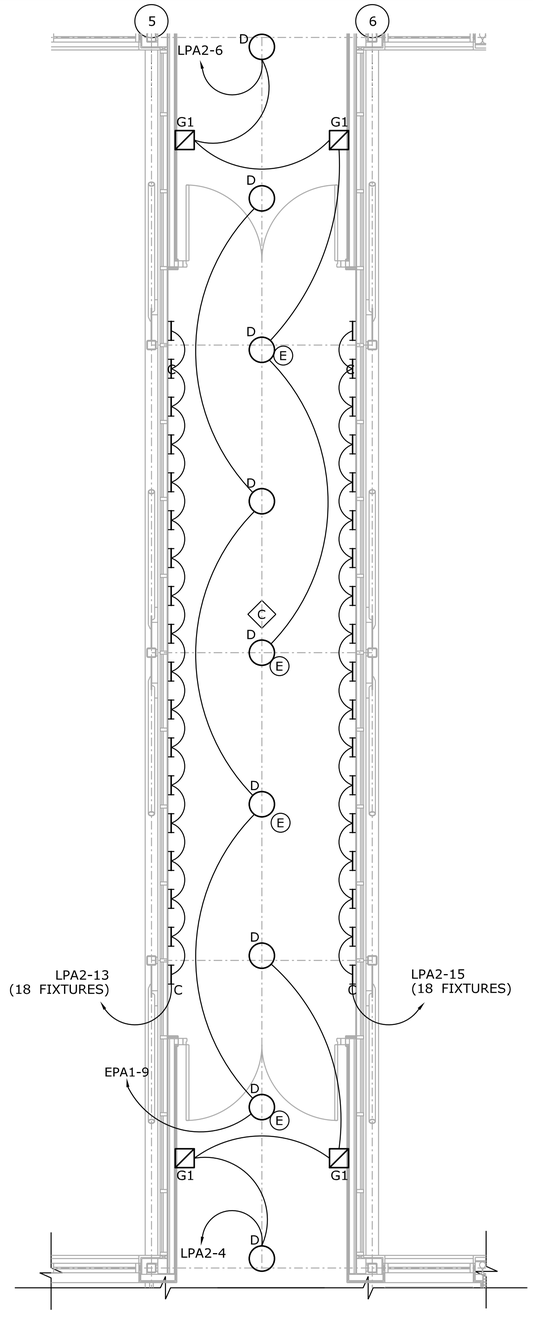
Hatch Mott MacDonald
Suite 100, North Lobby
400 Blue Hill Drive
Westwood, MA 02090

PROJECT TITLE:
NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR

TOWN: **BERLIN**

DRAWING TITLE:
LIGHTING PLAN STA. GRND. LEVEL-WEST

PROJECT NO. **170-3155**
DRAWING NO. **FLI-205**
SHEET NO. **01.13.053**

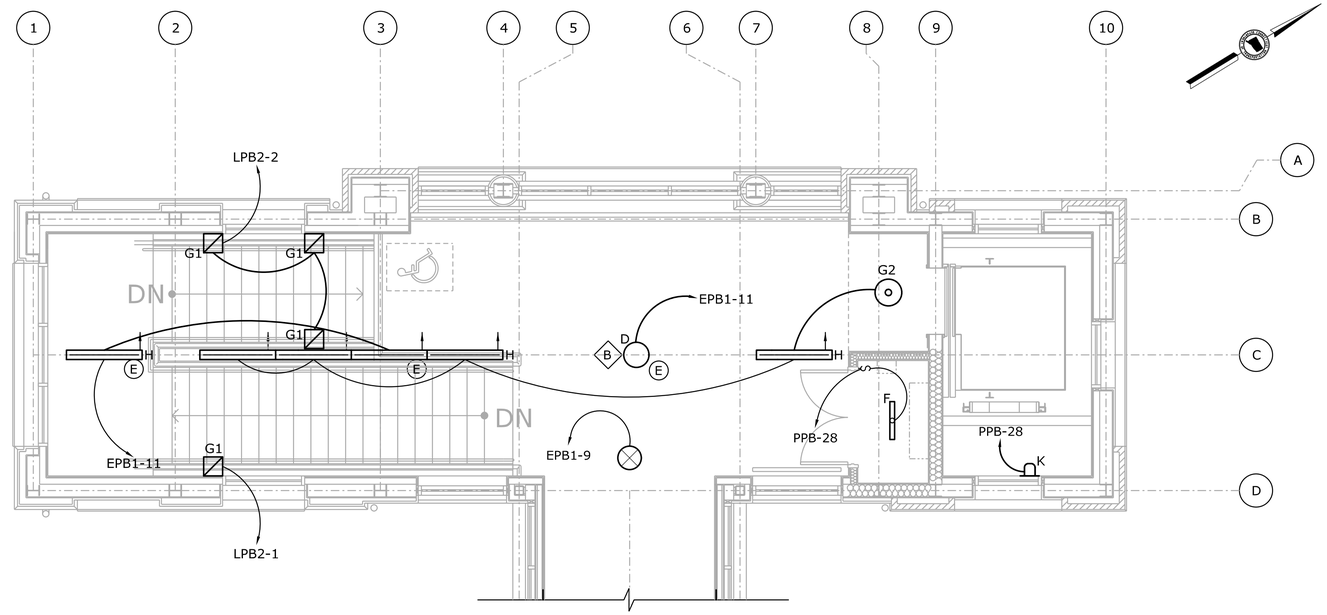


PEDESTRAIN BRIDGE PLAN

SCALE: 1/4" = 1'-0"

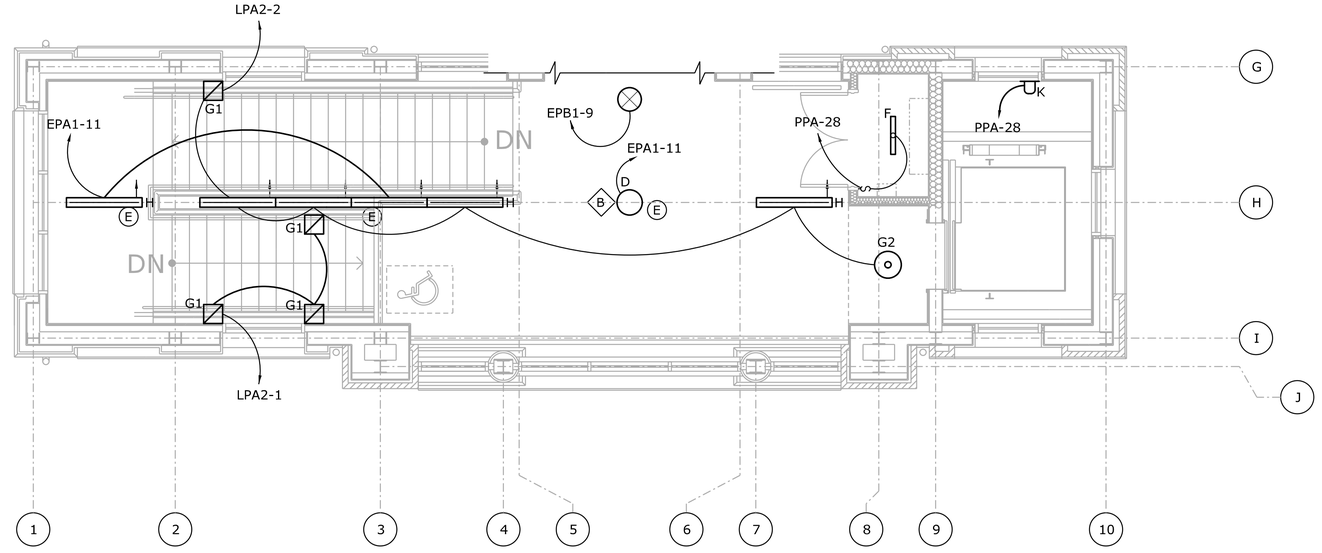
NOTES:

1. SEE DWG. FLI-901 FOR LIGHTING FIXTURE SCHEDULE.



ENLARGED PLAN - WEST TOWER

SCALE: 1/4" = 1'-0"



ENLARGED PLAN - EAST TOWER

SCALE: 1/4" = 1'-0"

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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-	-	-	-

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 2/26/2014

DESIGNER/DRAFTER: **D.CHERBELEATA**

CHECKED BY: **D. NEWMAN**

SCALE: 1/4" = 1'-0"

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA..CGR..CPS..0170-2296..007_..04..FLI_..206.dgn

SIGNATURE/ BLOCK:

Hatch Mott MacDonald
Suite 100, North Lobby
400 Blue Hill Drive
Westwood, MA 02090

PROJECT TITLE:

NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR

TOWN: **BERLIN**

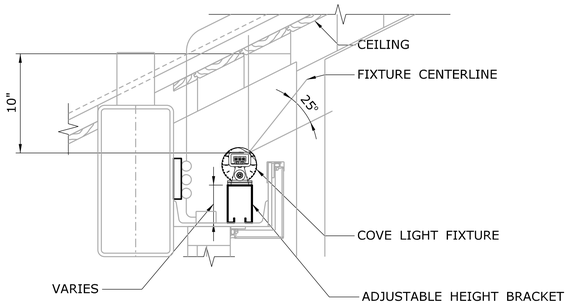
DRAWING TITLE:

LIGHTING PLAN PEDESTRIAN BRIDGE

PROJECT NO. **170-3155**

DRAWING NO. **FLI-206**

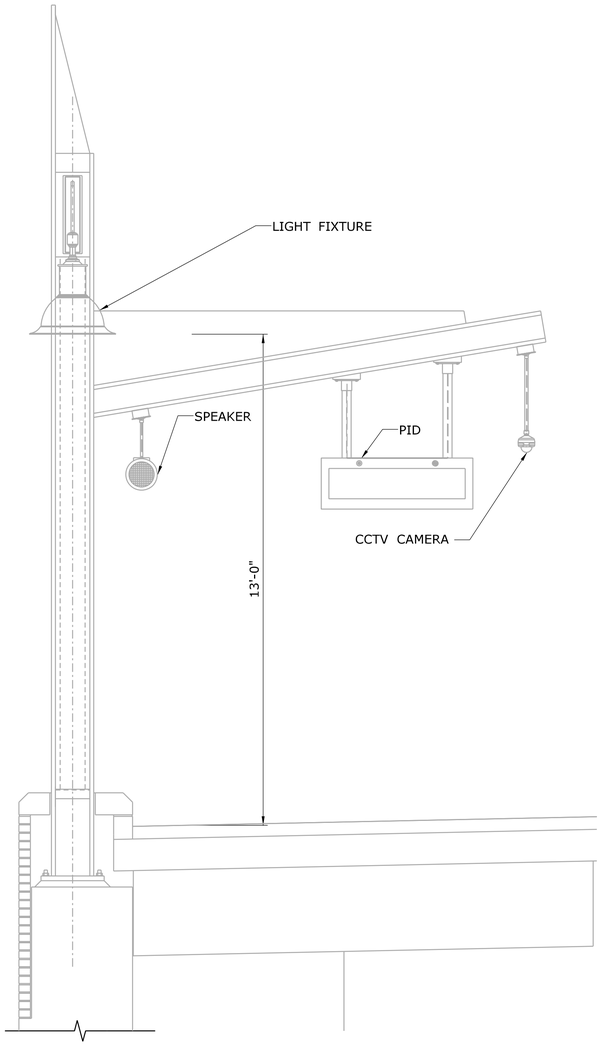
SHEET NO. **01.13.054**



1 / --

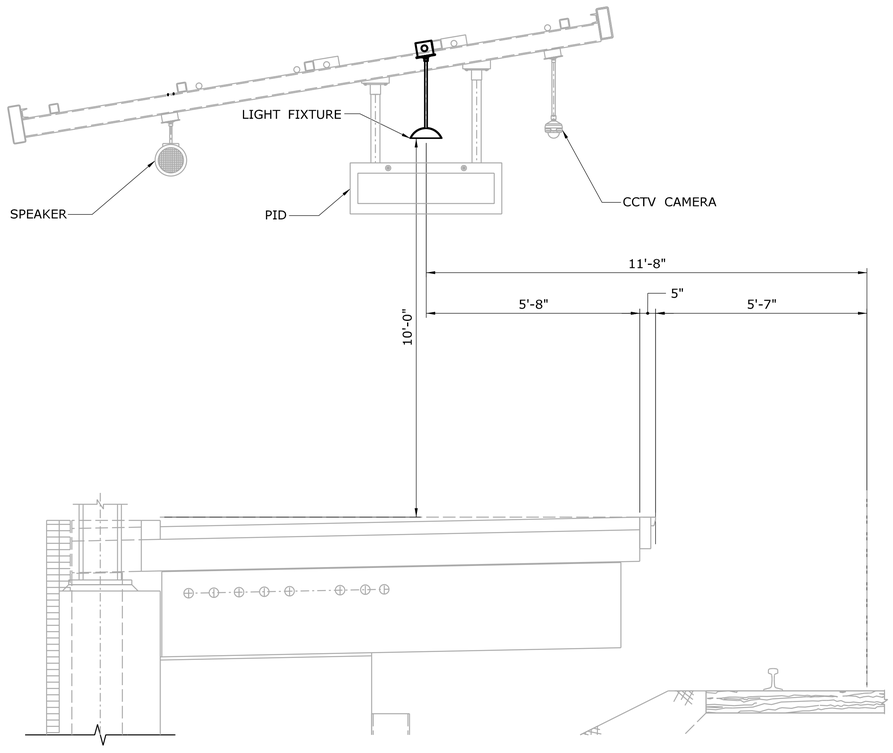
DETAIL 1

SCALE: 1-½" = 1'-0"



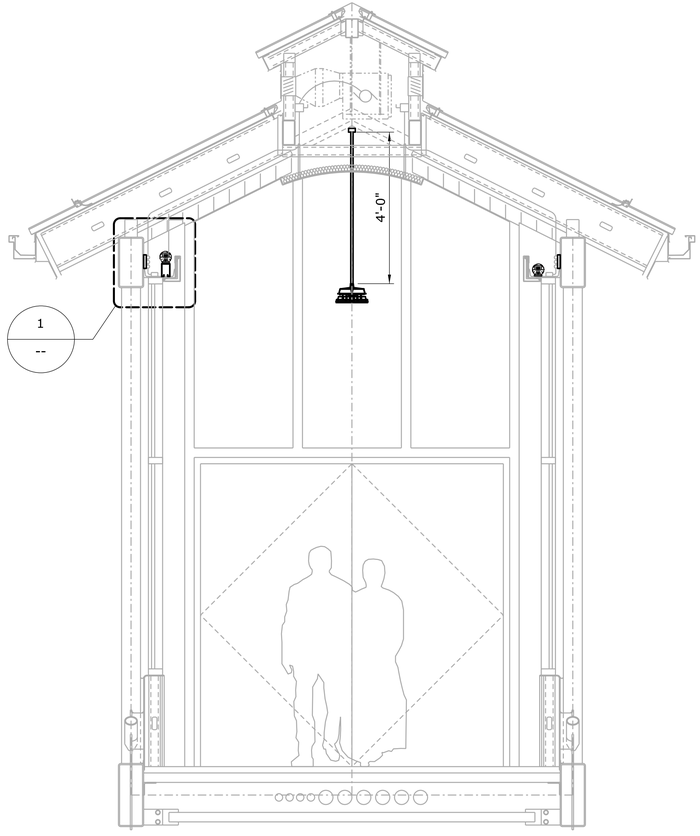
STANDARD PLATFORM LIGHT POLE

SCALE: 1/2" = 1'-0"



TYPICAL MOUNTING DETAIL FOR CANOPY SECTION

SCALE: 1/2" = 1'-0"



TYPICAL LIGHT FIXTURE ON PEDESTRIAN BRIDGE

SCALE: 1/2" = 1'-0"

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: D. CHERBELEATA
CHECKED BY: D. NEWMAN
SCALE: AS NOTED

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296_007_04_FLI_601.dgn

SIGNATURE/ BLOCK:

Hatch Mott MacDonald
Suite 100, North Lobby
400 Blue Hill Drive
Westwood, MA 02090

PROJECT TITLE:
NEW HAVEN - HARTFORD
SPRINGFIELD
RAIL CORRIDOR

TOWN: BERLIN

DRAWING TITLE:
LIGHTING
ELEVATIONS & DETAILS

PROJECT NO. 170-3155
DRAWING NO. FLI-601
SHEET NO. 01.13.055

BERLIN - EAST ROOM

PANEL LPA1
LOCATION STATION ELEC. RM. E103
VOLT'S 480/277V
PHASE 3
WIRE 4
SOLID NEUTRAL. YES W/GROUND BUS 14kA 40A MB

FED FROM MDPA
NEMA 1 ENCLOSURE

		CKT. BKR.						CKT. BKR.				
CONDUCTOR/CONDUIT	CIRCUIT DESCRIPTION	NO.	TRIP	POLE	KVA	Ø	KVA	POLE	TRIP	NO.	CIRCUIT DESCRIPTION	CONDUCTOR/CONDUIT
2#10AWG+1#10G-1 1/2"C	LIGHTING EAST PLATFORM (SOUTH)	* 1	15	1	0.18	A	0.18	1	15	2 *	LIGHTING EAST PLATFORM (CENTER)	2#10AWG+1#10G-1 1/2"C
2#10AWG+1#10G-1 1/2"C	LIGHTING EAST PLATFORM (SOUTH)	* 3	15	1	0.18	B	0.27	1	15	4 *	LIGHTING EAST PLATFORM (CENTER)	2#10AWG+1#10G-1 1/2"C
2#10AWG+1#10G-1 1/2"C	LIGHTING EAST PLATFORM (SOUTH)	* 5	15	1	0.18	C	0.22	1	15	6 *	LIGHTING EAST PLATFORM (CENTER)	2#10AWG+1#10G-1 1/2"C
2#10AWG+1#10G-1 1/2"C	LIGHTING EAST PARKING LOT	* 7	15	1	1.17	A	0.83	1	15	8 *	LIGHTING EAST PLATFORM (NORTH)	2#10AWG+1#10G-1 1/2"C
2#10AWG+1#10G-1 1/2"C	LIGHTING EAST PARKING LOT	* 9	15	1	1.17	B	0.33	1	15	10*	LIGHTING EAST PLATFORM (NORTH)	2#10AWG+1#10G-1 1/2"C
2#10AWG+1#10G-1 1/2"C	LIGHTING EAST PARKING LOT	*11	15	1	1.0	C	0.33	1	15	12*	LIGHTING EAST PLATFORM (NORTH)	2#10AWG+1#10G-1 1/2"C
2#10AWG+1#10G-1 1/2"C	LIGHTING EAST MECHANICAL AND UTILITY ROOMS	13	15	1	0.11	A	0.18	1	15	14	LIGHTING RELAY PANELS SUPPLY	2#10AWG+1#10G-3/4"C
2#10AWG+1#10G-1"C	EAST FRONT RAMP LIGHTING	*15	15	1	0.27	B	0.15	1	15	16*	EAST FRONT RAMP LIGHTING	2#10AWG+1#10G-1"C
	SPARE	17	15	1	--	C	0.19	1	15	18*	EAST FRONT RAMP LIGHTING	2#10AWG+1#10G-1"C
		19				A	0.16	1	15	20*	EAST FRONT RAMP LIGHTING	2#10AWG+1#10G-1"C
		21				B				22		
		23				C				24		

A PH.: 2.81 | B PH.: 2.37 | C PH.: 1.92

TOTAL kVA = 7.1

BERLIN - WEST ROOM

PANEL LPB1
LOCATION STATION ELEC RM. W101
VOLT'S 480/277V
PHASE 3
WIRE 4
SOLID NEUTRAL. YES W/GROUND BUS 14kA 40A MB

FED FROM MDPB
NEMA 1 ENCLOSURE

		CKT. BKR.						CKT. BKR.				
CONDUCTOR/CONDUIT	CIRCUIT DESCRIPTION	NO.	TRIP	POLE	KVA	Ø	KVA	POLE	TRIP	NO.	CIRCUIT DESCRIPTION	CONDUCTOR/CONDUIT
2#10AWG+1#10G-1 1/2"C	LIGHTING WEST PLATFORM (CENTER)	* 1	15	1	0.09	A	0.31	1	15	2 *	LIGHTING WEST PLATFORM (CENTER)	2#10AWG+1#10G-1 1/2"C
2#10AWG+1#10G-1 1/2"C	LIGHTING WEST PLATFORM (CENTER)	* 3	15	1	0.09	B	0.31	1	15	4 *	LIGHTING WEST PLATFORM (CENTER)	2#10AWG+1#10G-1 1/2"C
2#10AWG+1#10G-1 1/2"C	LIGHTING WEST PLATFORM (CENTER)	* 5	15	1	0.09	C	0.27	1	15	6 *	LIGHTING WEST PLATFORM (CENTER)	2#10AWG+1#10G-1 1/2"C
2#10AWG+1#10G-3/4"C	LIGHTING WEST PLATFORM (NORTH)	* 7	15	1	0.76	A	0.67	1	15	8 *	LIGHTING WEST PLATFORM (SOUTH)	2#10AWG+1#10G-1 1/2"C
2#10AWG+1#10G-3/4"C	LIGHTING WEST PLATFORM (NORTH)	* 9	15	1	0.59	B	0.5	1	15	10*	LIGHTING WEST PLATFORM (SOUTH)	2#10AWG+1#10G-1 1/2"C
2#10AWG+1#10G-3/4"C	LIGHTING WEST PLATFORM (NORTH)	*11	15	1	0.42	C	0.33	1	15	12*	LIGHTING WEST PLATFORM (SOUTH)	2#10AWG+1#10G-1 1/2"C
2#10AWG+1#10G-1-1/2"C	LIGHTING WEST MECHANICAL AND UTILITY ROOMS	13	15	1	0.11	A	0.18	1	15	14	LIGHTING RELAY PANELS SUPPLY	2#10AWG+1#10G-3/4"C
	SPARE	15	15	1	--	B	--	1	15	16	SPARE	
	SPARE	17	15	1	--	C	--	1	15	18	SPARE	
		19				A				20		
		21				B				22		
		23				C				24		

A PH.: 2.12 | B PH.: 1.49 | C PH.: 1.11

TOTAL kVA = 4.72

BERLIN - EAST ROOM

PANEL LPA2
LOCATION STATION ELEC. RM. E103
VOLT'S 480/277V
PHASE 3
WIRE 4
SOLID NEUTRAL. YES W/GROUND BUS 14kA 40A MB

FED FROM MDPA
NEMA 1 ENCLOSURE

		CKT. BKR.						CKT. BKR.				
CONDUCTOR/CONDUIT	CIRCUIT DESCRIPTION	NO.	TRIP	POLE	KVA	Ø	KVA	POLE	TRIP	NO.	CIRCUIT DESCRIPTION	CONDUCTOR/CONDUIT
2#10AWG+1#10G-3/4"C	LIGHTING STATION GROUND EAST LOBBY	* 1	15	1	0.41	A	0.23	1	15	2 *	LIGHTING STATION E. STAIRS AND 2ND FLOOR	2#10AWG+1#10G-3/4"C
2#10AWG+1#10G-3/4"C	LIGHTING STATION GROUND ELECTRICAL ROOMS	3	15	1	0.17	B	0.25	1	15	4 *	LIGHTING STATION BRIDGE	2#10AWG+1#10G-3/4"C
2#10AWG+1#10G-3/4"C	LIGHTING STATION GROUND COMMUNICATION ROOM	5	15	1	0.17	C	0.36	1	15	6 *	LIGHTING STATION BRIDGE	2#10AWG+1#10G-3/4"C
2#10AWG+1#10G-3/4"C	EAST ENTRANCE FACADE LIGHTING	* 7	15	1	0.03	A	--	1	15	8	SPARE	
	SPARE	9	15	1	--	B	--	1	15	10	SPARE	
	SPARE	11	15	1	--	C	--	1	15	12	SPARE	
2#10AWG+1#10G-3/4"C	LIGHTING STATION BRIDGE	*13	15	1	0.16	A	--	1	15	14	SPARE	
2#10AWG+1#10G-3/4"C	LIGHTING STATION BRIDGE	*15	15	1	0.16	B	--	1	15	16	SPARE	
	SPARE	17	15	1	--	C	--	1	15	18	SPARE	
		19				A				20		
		21				B				22		
		23				C				24		

A PH.: 0.83 | B PH.: 0.58 | C PH.: 0.53

TOTAL kVA = 1.94

BERLIN - WEST ELECTRICAL ROOM

PANEL LPB2
LOCATION STATION ELEC. RM. W101
VOLT'S 480/277V
PHASE 3
WIRE 4
SOLID NEUTRAL. YES W/GROUND BUS 14kA 40A MB

FED FROM MDPB
NEMA 1 ENCLOSURE

		CKT. BKR.						CKT. BKR.				
CONDUCTOR/CONDUIT	CIRCUIT DESCRIPTION	NO.	TRIP	POLE	KVA	Ø	KVA	POLE	TRIP	NO.	CIRCUIT DESCRIPTION	CONDUCTOR/CONDUIT
2#10AWG+1#10G-3/4"C	LIGHTING STATION GROUND WEST LOBBY	* 1	15	1	0.41	A	0.23	1	15	2 *	LIGHTING SECOND FLOOR	2#10AWG+1#10G-3/4"C
2#10AWG+1#10G-3/4"C	LIGHTING STATION GROUND ELECTRICAL ROOM & CLOSET	3	15	1	0.17	B	0.2	1	15	4 *	WEST ENTRANCE FACADE LTG.	2#10AWG+1#10G-3/4"C
2#10AWG+1#10G-3/4"C	LIGHTING STATION GROUND MAINTENANCE ROOM	5	15	1	0.17	C	--	1	15	6	SPARE	
		7				A				8		
		9				B				10		
		11				C				12		
		13				A				14		
		15				B				16		
		17				C				18		
		19				A				20		
		21				B				22		
		23				C				24		

A PH.: 0.64 | B PH.: 0.37 | C PH.: 0.17

TOTAL kVA = 1.18

* THESE CIRCUITS ARE CONTROLLED

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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-	-	-	-

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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: D.CHERBELEATA
CHECKED BY: D. NEWMAN
NOT TO SCALE

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296_007_04_FLI_801.dgn

SIGNATURE/BLOCK:
Hatch Mott MacDonald
Suite 100, North Lobby
400 Blue Hill Drive
Westwood, MA 02090

PROJECT TITLE:
NEW HAVEN - HARTFORD
SPRINGFIELD
RAIL CORRIDOR

TOWN: BERLIN

DRAWING TITLE:
LIGHTING
PNL. SCHD.-1 OF 3

PROJECT NO. 170-3155
DRAWING NO. FLI-801
SHEET NO. 01.13.056

PANEL EPA1 (EMERGENCY)
LOCATION STATION ELEC. RM. E101
VOLT'S 480/277V
PHASE 3
WIRE 4
SOLID NEUTRAL. YES W/GROUND BUS 14kA 40A MB

BERLIN - EAST ROOM

FED FROM UPSA
NEMA 1 ENCLOSURE

		CKT. BKR.						CKT. BKR.				
CONDUCTOR/CONDUIT	CIRCUIT DESCRIPTION	NO.	TRIP	POLE	KVA	Ø	KVA	POLE	TRIP	NO.	CIRCUIT DESCRIPTION	CONDUCTOR/CONDUIT
2#10AWG+1#10G-1-1/2"C	LIGHTING EAST PLATFORM (SOUTH)	*1	15	1	0.14	A	0.09	1	15	2*	LIGHTING EAST PLATFORM (CENTER)	2#10AWG+1#10G-1-1/2"C
2#10AWG+1#10G-1-1/2"C	LIGHTING EAST PLATFORM (SOUTH)	*3	15	1	0.09	B	0.09	1	15	4*	LIGHTING EAST PLATFORM (CENTER)	2#10AWG+1#10G-1-1/2"C
2#10AWG+1#10G-1-1/2"C	LIGHTING EAST PLATFORM (SOUTH)	*5	15	1	0.09	C	0.06	1	15	6*	LIGHTING EAST PLATFORM (CENTER)	2#10AWG+1#10G-1-1/2"C
2#10AWG+1#10G-1-1/2"C	LIGHTING STATION GROUND EAST LOBBY	*7	15	1	0.27	A	0.01	1	15	8	EXIT SIGNS SOUTH PLATFORM	2#10AWG+1#10G-1-1/2"C
2#10AWG+1#10G-3/4"C	LIGHTING STATION BRIDGE	*9	15	1	0.67	B	0.13	1	15	10	EXIT SIGNS 1ST FLOOR & RMS	2#10AWG+1#10G-3/4"C
2#10AWG+1#10G-3/4"C	LIGHTING STATION E. STAIRS AND SECOND FLOOR	*11	15	1	0.13	C	0.02	1	15	12	EXIT SIGNS CENTER PLATFORM	2#10AWG+1#10G-1-1/2"C
2#10AWG+1#10G-1-1/2"C	LIGHTING EAST PLATFORM (NORTH)	*13	15	1	0.33	A	0.02					
2#10AWG+1#10G-1-1/2"C	LIGHTING EAST PLATFORM (NORTH)	*15	15	1	0.33	B	7.15	3	15	14	TRANSFORMER TA2	4#10AWG+1#10G-1-1/2"C
2#10AWG+1#10G-1-1/2"C	LIGHTING EAST PLATFORM (NORTH)	*17	15	1	0.33	C						
		19				A				20		
		21				B				22		
		23				C				24		

A PH.: 5.84 | B PH.: 6.31 | C PH.: 5.66

TOTAL kVA = 17.81

PANEL EPB1 (EMERGENCY)
LOCATION STATION ELEC. RM. W101
VOLT'S 480/277V
PHASE 3
WIRE 4
SOLID NEUTRAL. YES W/GROUND BUS 14kA 40A MB

BERLIN - WEST ELECTRICAL ROOM

FED FROM UPSB
NEMA 1 ENCLOSURE

		CKT. BKR.						CKT. BKR.				
CONDUCTOR/CONDUIT	CIRCUIT DESCRIPTION	NO.	TRIP	POLE	KVA	Ø	KVA	POLE	TRIP	NO.	CIRCUIT DESCRIPTION	CONDUCTOR/CONDUIT
2#10AWG+1#10G-1-1/2"C	LIGHTING WEST PLATFORM (CENTER)	*1	15	1	0.04	A	0.09	1	15	2*	LIGHTING WEST PLATFORM (CENTER)	2#10AWG+1#10G-1-1/2"C
2#10AWG+1#10G-1-1/2"C	LIGHTING WEST PLATFORM (CENTER)	*3	15	1	0.04	B	0.09	1	15	4*	LIGHTING WEST PLATFORM (CENTER)	2#10AWG+1#10G-1-1/2"C
2#10AWG+1#10G-1-1/2"C	LIGHTING WEST PLATFORM (CENTER)	*5	15	1	0.04	C	0.1	1	15	6*	LIGHTING WEST PLATFORM (CENTER)	2#10AWG+1#10G-1-1/2"C
2#10AWG+1#10G-1-1/2"C	LIGHTING STATION GROUND WEST LOBBY	*7	15	1	0.27	A	0.33	1	15	8*	LIGHTING WEST PLATFORM (SOUTH)	2#10AWG+1#10G-1-1/2"C
2#10AWG+1#10G-3/4"C	EXIT SIGNS STATION	9	15	1	0.12	B	0.33	1	15	10*	LIGHTING WEST PLATFORM (SOUTH)	2#10AWG+1#10G-1-1/2"C
2#10AWG+1#10G-3/4"C	LIGHTING STATION W. STAIRS AND 2ND FLOOR	*11	15	1	0.14	C	0.34	1	15	12*	LIGHTING WEST PLATFORM (SOUTH)	2#10AWG+1#10G-1-1/2"C
2#10AWG+1#10G-1-1/2"C	LIGHTING WEST PLATFORM (NORTH)	*13	15	1	0.42	A	0.02	1	15	14	EXIT SIGNS SOUTH PLATFORM	2#10AWG+1#10G-1-1/2"C
2#10AWG+1#10G-1-1/2"C	LIGHTING WEST PLATFORM (NORTH)	*15	15	1	0.33	B	0.02	1	15	16	EXIT SIGNS CENTER PLATFORM	2#10AWG+1#10G-1-1/2"C
2#10AWG+1#10G-1-1/2"C	LIGHTING WEST PLATFORM (NORTH)	*17	15	1	0.33	C	--	1	15	18	SPARE	
		19				A				20		
		21				B				22		
		23				C				24		

A PH.: 1.17 | B PH.: 0.93 | C PH.: 0.95

TOTAL kVA = 3.05

PANEL EPA2 (EMERGENCY)
LOCATION STATION ELEC. RM. E101
VOLT'S 208/120V
PHASE 3
WIRE 4
SOLID NEUTRAL. YES W/GROUND BUS 14kA 40A MB

BERLIN - EAST ROOM

FED FROM EPA1
NEMA 1 ENCLOSURE

		CKT. BKR.						CKT. BKR.				
CONDUCTOR/CONDUIT	CIRCUIT DESCRIPTION	NO.	TRIP	POLE	KVA	Ø	KVA	POLE	TRIP	NO.	CIRCUIT DESCRIPTION	CONDUCTOR/CONDUIT
2#10AWG+1#10G-1-1/2"C	BLUE LIGHT STATIONS-EAST	1	15	1	0.22	A	0.22	1	15	2	BLUE LIGHT STATIONS-WEST	2#10AWG+1#10G-1-1/2"C
2#10AWG+1#10G-3/4"C	COMMUNICATION PID RACK (PROVISION)	3	20	1	0.27	B	0.53	1	15	4	ELEVATOR CAR LIGHTING AND AC-EAST	2#10AWG+1#10G-3/4"C
2#10AWG+1#10G-3/4"C	COMMUNICATION VSS RACK (PROVISION)	5	20	1	0.27	C	0.53	1	15	6	ELEVATOR CAR LIGHTING AND AC-WEST	2#10AWG+1#10G-3/4"C
2#10AWG+1#10G-3/4"C	COMMUNICATION TELECOM RACK (PROVISION)	7	20	1	0.27	A	0.27	1	20	8	TVM RACK	2#10AWG+1#10G-3/4"C
2#10AWG+1#10G-2"C	BLUE LIGHTS EAST PARKING LOT	9	15	1	0.23	B	0.12	1	15	10	BLUE LIGHTS EAST PLATFORM	2#10AWG+1#10G-2"C
2#10AWG+1#10G-2"C	BLUE LIGHTS EAST PLATFORM SOUTH	11	15	1	0.12	C	0.12	1	15	12	BLUE LIGHTS WEST PLATFORM	2#10AWG+1#10G-2"C
2#10AWG+1#10G-2"C	BLUE LIGHTS EAST PLATFORM NORTH	13	15	1	0.12	A	--	1	15	14	SPARE	
		15				B				16		
		17				C				18		
		19				A				20		
		21				B				22		
		23				C				24		

A PH.: 1.1 | B PH.: 1.15 | C PH.: 1.04

TOTAL kVA = 3.29

PANEL MDPA
LOCATION STATION ELEC. RM. E101
VOLT'S 480/277V
PHASE 3
WIRE 4
SOLID NEUTRAL. YES W/GROUND BUS 65kA 400A MB

BERLIN - EAST ROOM

FED FROM UTILITY TRANSFORMER
NEMA 1 ENCLOSURE

		CKT. BKR.						CKT. BKR.				
CONDUCTOR/CONDUIT	CIRCUIT DESCRIPTION	NO.	TRIP	POLE	KVA	Ø	KVA	POLE	TRIP	NO.	CIRCUIT DESCRIPTION	CONDUCTOR/CONDUIT
4#8AWG+1#10G-3/4"C	PANEL LPA1	1	40	3	7.08	A	75	3	125	2	TRANSFORMER TA1 TO PPA	3#1AWG+1#6G-1-1/2"C
4#8AWG+1#10G-3/4"C	PANEL LPA2	3	40	3	1.94	B	25	3	60	4	UPSA TO EPA1	4#6AWG+1#10G-1"C
4#250kCMIL+1#4G-2-1/2"C	PANEL MDPB	5	250	3	150	C	15.54	3	30	6	ELEVATOR EAST TOWER	3#10AWG+1#10G-3/4"C
3#10AWG+1#10G-2"C	BOILER P1 (EAST SNOW SHED)	7	20	3	7	A	13.03	3	40	8	PUMPS (EAST SNOW SHED)	3#8AWG+1#10G-2"C
3#10AWG+1#10G-3/4"C	HEATER EUH-3	9	20	3	3.75	B	3.75	3	20	10	HEATER EUH-4	3#10AWG+1#10G-3/4"C
	SPARE	11	--	--	--	C	--	--	--	12	SPARE	
		13				A				14		
		15				B				16		
		17				C				18		
		19				A				20		
		21				B				22		
		23				C				24		

A PH.: 100.7 | B PH.: 100.7 | C PH.: 100.7

TOTAL kVA = 302.1

* THESE CIRCUITS ARE CONTROLLED

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 2/26/2014

DESIGNER/DRAFTER: D.CHERBELEATA
CHECKED BY: D. NEWMAN
NOT TO SCALE

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA..CGR..CPS..0170-2296..007_..04..FLI_..802.dgn

SIGNATURE/BLOCK:

Hatch Mott MacDonald
Suite 100, North Lobby
400 Blue Hill Drive
Westwood, MA 02090

PROJECT TITLE:
NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR

TOWN: BERLIN

DRAWING TITLE:
LIGHTING PNL. SCHD.-2 OF 3

PROJECT NO. 170-3155
DRAWING NO. FLI-802
SHEET NO. 01.13.057

BERLIN - EAST ROOM

PANEL PPA
LOCATION STATION ELEC. RM. E101
VOLT'S 208/120V
PHASE 3
WIRE 4
SOLID NEUTRAL. YES W/GROUND BUS 18kA
125A MB

FED FROM MDPA
NEMA 1 ENCLOSURE

		CKT. BKR.						CKT. BKR.				
CONDUCTOR/CONDUIT	CIRCUIT DESCRIPTION	NO.	TRIP	POLE	KVA	Ø	KVA	POLE	TRIP	NO.	CIRCUIT DESCRIPTION	CONDUCTOR/CONDUIT
2#10AWG+1#10G-3/4"C	RECEPTACLES EAST PLATFORM (SOUTH)	1	20	1	0.18	A	0.18	1	20	2	RECEPTACLES EAST PLATFORM (NORTH)	2#10AWG+1#10G-3/4"C
2#10AWG+1#10G-1-1/2"C	RECEPTACLES EAST PLATFORM (SOUTH)	3	20	1	0.18	B	0.18	1	20	4	RECEPTACLES EAST TOWER AND DOWNSTAIRS	2#10AWG+1#10G-3/4"C
2#10AWG+1#10G-2"C	RECEPTACLES EAST PLATFORM MECHANICAL & UTILITY ROOM	5	20	1	0.18	C	0.18	1	20	6	RECEPTACLES EAST TOWER AND BRIDGE	2#10AWG+1#10G-3/4"C
2#10AWG+1#10G-1-1/2"C	CAMERAS EAST PLATFORM (SOUTH)	7	20	1	0.38	A	2.38	1	20	8	CAMERAS PARKING LOT	2#10AWG+1#10G-2"C
2#10AWG+1#10G-1-1/2"C	CAMERAS EAST PLATFORM (SOUTH)	9	20	1	0.50	B	2.75	2	20	10	ACCU-2 AND AC2	2#10AWG+1#10G-3/4"C
2#10AWG+1#10G-1-1/2"C	CAMERAS EAST PLATFORM (NORTH)	11	20	1	0.50	C						
2#10AWG+1#10G-1-1/2"C	PID'S PLATFORM (NORTH)	13	20	1	0.6	A	0.12	1	20	14	ELEVATOR MANAGING SYSTEM	2#10AWG+1#10G-3/4"C
2#10AWG+1#10G-1-1/2"C	PID'S PLATFORM (SOUTH)	15	20	1	0.6	B	4.63	2	40	16	ACCU-1 AND AC1	2#8AWG+1#10G-3/4"C
2#10AWG+1#10G-1-1/2"C	PID'S PLATFORM (SOUTH)	17	20	1	1.2	C						
2#10AWG+1#10G-3/4"C	TVM	19	20	1	0.75	A	0.38	1	20	20	CAMERAS (STATION)	2#10AWG+1#10G-3/4"C
2#10AWG+1#10G-2"C	TVM	21	20	1	0.75	B	0.38	1	20	22	CAMERAS (BRIDGE)	2#10AWG+1#10G-3/4"C
2#4AWG+1#10G-1"C	EXHAUST FANS EF5, EF6, EF7	23	50	1	3.08	C	0.4	1	20	24	COMMS. RACK RECEPTACLE	2#10AWG+1#10G-3/4"C
2#10AWG+1#10G-3/4"C	ENTRANCE SIGN	25	20	1	0.06	A	0.05	1	20	26	EXHAUST FAN AND DAMPER EF2 AND D2	2#10AWG+1#10G-3/4"C
2#10AWG+1#10G-2"C	GAS HEATER GUH-1	27	20	1	0.06	B	1.20	1	20	28	ELEVATOR PIT LIGHTING AND RECEPTACLES	2#10AWG+1#10G-3/4"C
2#10AWG+1#10G-2"C	GLYCOL PUMP GMU-1	29	20	1	0.31	C	1.2	1	20	30	PID'S STATION	2#10AWG+1#10G-3/4"C
2#10AWG+1#10G-3/4"C	FACP	31	20	1	0.2	A	0.03	1	20	32	CONDENSATE PUMP CP-2	2#10AWG+1#10G-3/4"C
2#10AWG+1#10G-3/4"C	CONDENSATE PUMP CP-1	33	20	1	0.03	B	0.05	1	20	34	RAMP HEAT TRACE PROVISION	2#10AWG+1#10G-3/4"C
3#8AWG+1#8G-2"C	ELECTRIC VEHICLE CHARGING STATION	35	40	2	7.8	C / A	0.24	2	20	36	EXHAUST FAN AND DAMPER EF1 AND D1	2#10AWG+1#10G-3/4"C
2#10AWG+1#10G-3/4"C	PAYSTATION	39	20	1	0.75	B	0.4	1	30	40	COMMS. RACK RECEPTACLE	2#10AWG+1#10G-3/4"C
2#10AWG+1#10G-3/4"C	PAYSTATION	41	20	1	0.75	C	--	1	20	42	SPARE	

A PH.: 9.33 | B PH.: 9.78 | C PH.: 13.40

TOTAL kVA = 32.51

BERLIN - WEST ROOM

PANEL PPB
LOCATION STATION ELEC. RM. W101
VOLT'S 208/120V
PHASE 3
WIRE 4
SOLID NEUTRAL. YES W/GROUND BUS 18kA
125A MB

FED FROM MDPB (TB1)
NEMA 1 ENCLOSURE

		CKT. BKR.						CKT. BKR.				
CONDUCTOR/CONDUIT	CIRCUIT DESCRIPTION	NO.	TRIP	POLE	KVA	Ø	KVA	POLE	TRIP	NO.	CIRCUIT DESCRIPTION	CONDUCTOR/CONDUIT
2#10AWG+1#10G-3/4"C	RECEPTACLES WEST PLATFORM (SOUTH)	1	20	1	0.18	A	0.18	1	20	2	RECEPTACLES WEST PLATFORM (UTILITY ROOMS)	2#10AWG+1#10G-2"C
2#10AWG+1#10G-3/4"C	RECEPTACLES WEST PLATFORM (NORTH)	3	20	1	0.18	B	0.18	1	20	4	RECEPTACLES WEST TOWER AND BRIDGE	2#10AWG+1#10G-3/4"C
2#10AWG+1#10G-3/4"C	RECEPTACLES WEST PLATFORM (SOUTH)	5	20	1	0.10	C	0.18	1	20	6	RECEPTACLES WEST TOWER	2#10AWG+1#10G-3/4"C
2#10AWG+1#10G-3/4"C	CAMERAS WEST PLATFORM (SOUTH)	7	20	1	0.5	A	0.24	1	20	8	EXHAUST FAN AND DAMPER EF3 AND D3	2#10AWG+1#10G-3/4"C
2#10AWG+1#10G-3/4"C	CAMERAS WEST PLATFORM (SOUTH)	9	20	1	0.5	B	--	1	20	10	SPARE	
2#10AWG+1#10G-3/4"C	CAMERAS WEST PLATFORM (NORTH)	11	20	1	0.38	C	--	1	20	12	SPARE	
2#10AWG+1#10G-3/4"C	PID'S PLATFORM (NORTH)	13	20	1	0.9	A	0.12	1	20	14	ELEVATOR MANAGING SYSTEM	2#10AWG+1#10G-3/4"C
2#10AWG+1#10G-3/4"C	PID'S PLATFORM (SOUTH)	15	20	1	0.6	B	2.75	2	20	16	ACCU-3 AND AC3	2#10AWG+1#10G-3/4"C
2#10AWG+1#10G-3/4"C	PID'S PLATFORM (SOUTH)	17	20	1	1.5	C						
2#10AWG+1#10G-3/4"C	TVM	19	20	1	0.75	A	0.25	1	20	20	CAMERAS (STATION)	2#10AWG+1#10G-3/4"C
2#10AWG+1#10G-3/4"C	TVM	21	20	1	0.75	B	0.13	1	20	22	CAMERAS (BRIDGE)	2#10AWG+1#10G-3/4"C
2#6AWG+1#10G-1"C	EXHAUST FANS EF8 AND EF9	23	40	1	2.06	C	--	1	20	24	SPARE	
	SPARE	25	20	1	--	A	0.05	1	20	26	EXHAUST FAN AND DAMPER EF4 AND D4	2#10AWG+1#10G-3/4"C
2#10AWG+1#10G-2"C	GAS HEATER GUH-2	27	20	1	0.06	B	1.20	1	20	28	ELEVATOR PIT LIGHTING AND RECEPTACLES	2#10AWG+1#10G-3/4"C
2#10AWG+1#10G-2"C	GLYCOL PUMP GMU-2	29	20	1	0.31	C	1.2	1	20	30	PID'S STATION	2#10AWG+1#10G-3/4"C
	SPARE	31	20	1	--	A	0.03	1	20	32	CONDENSATE PUMP CP-3	2#10AWG+1#10G-3/4"C
	SPARE	33	20	1	--	B	0.05	1	20	34	RAMP HEAT TRACE PROVISION	2#10AWG+1#10G-3/4"C
	SPARE	35	20	1	--	C	--	1	20	36	SPARE	
	SPARE	37	20	1	--	A	--	1	20	38	SPARE	
	SPARE	39	20	1	--	B	--	1	20	40	SPARE	
	SPARE	41	20	1	--	C	--	1	20	42	SPARE	

A PH.: 3.2 | B PH.: 3.65 | C PH.: 5.73

TOTAL kVA = 12.58

BERLIN - WEST ROOM

PANEL MDPB
LOCATION STATION ELEC RM. W101
VOLT'S 480/277V
PHASE 3
WIRE 4
SOLID NEUTRAL. YES W/GROUND BUS 35kA
250A MB

FED FROM MDPA
NEMA 1 ENCLOSURE

		CKT. BKR.						CKT. BKR.				
CONDUCTOR/CONDUIT	CIRCUIT DESCRIPTION	NO.	TRIP	POLE	KVA	Ø	KVA	POLE	TRIP	NO.	CIRCUIT DESCRIPTION	CONDUCTOR/CONDUIT
4#8AWG+1#10G-3/4"C	PANEL LPB1	1	40	3	4.71		75	3	125	2	TRANSFORMER TB1 TO PPB	3#1AWG+1#6G-1-1/2"C
4#8AWG+1#10G-3/4"C	PANEL LPB2	3	40	3	0.97		25	3	30	4	UPSB TO EPB	4#10AWG+1#10G-3/4"C
	SPARE	5	40	3	--		15.54	3	30	6	ELEVATOR WEST	4#10AWG+1#10G-3/4"C
3#10AWG+1#10G-2"C	BOILER (WEST SNOW SHED)	7	15	3	7.77		11.65	3	40	8	PUMPS (WEST SNOW SHED)	3#8AWG+1#10G-2"C
3#10AWG+1#10G-3/4"C	HEATER EUH-1	9	20	3	3.75		3.75	3	20	10	HEATER EUH-2	3#10AWG+1#10G-3/4"C
	SPARE	11	20	3	--		--	3	20	12	SPARE	
		13	--	3	--		--	3	--	14		
		15								16		
		17								18		
		19								20		
		21								22		
		23								24		

A PH.: 49.38 | B PH.: 49.38 | C PH.: 49.83

TOTAL kVA = 148.14

NOTES:

1. CONDUCTORS ARE GROUPED BY VOLTAGE SYSTEMS AND RUN TOGETHER IN CONDUITS WHEN POSSIBLE, SEE PLANS SERIES 'FEL' FOR ADDITIONAL INFORMATION ON CONDUITS AND ONE LINE DIAGRAMS ON FEL-701, 702.
2. UNDERGROUND CONDUITS ARE 2" PVC.
3. MAIN CONDUITS IN CANOPY AND UNDER THE PLATFORM ARE 1 1/2" RIGID GALVANIZED STEEL.
4. MINIMUM CONDUIT SIZE IS 3/4".
5. EMERGENCY SYSTEMS ARE SEGREGATED FROM OTHER SYSTEMS.
6. CONTRACTOR SHALL BALANCE THE LOADS ACROSS PHASES AS MUCH AS POSSIBLE.

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: **D.CHERBELEATA**
CHECKED BY: **D. NEWMAN**
NOT TO SCALE

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296_007__04_FLI__803.dgn

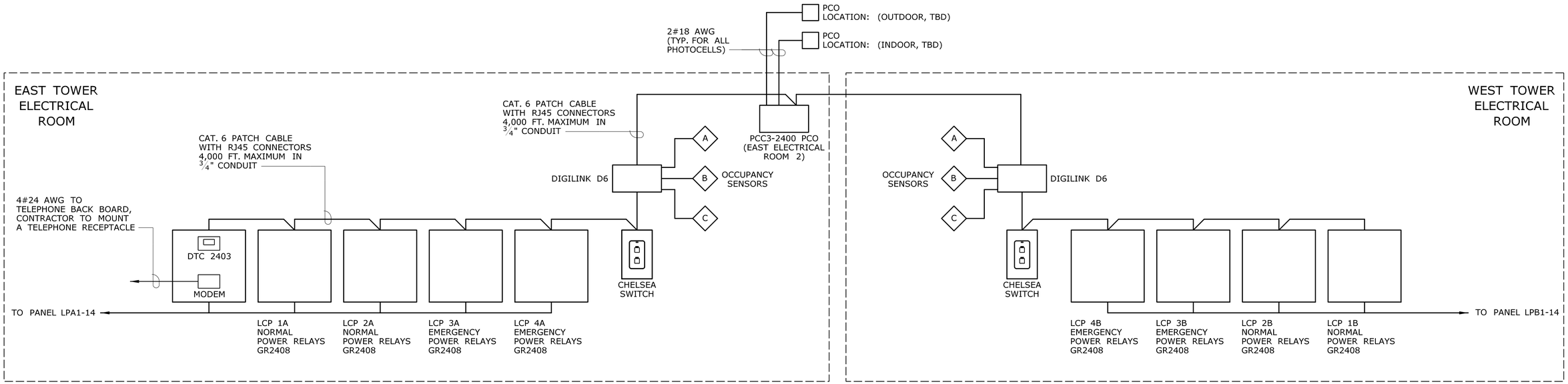
SIGNATURE/ BLOCK:
Hatch Mott MacDonald
Suite 100, North Lobby
400 Blue Hill Drive
Westwood, MA 02090

PROJECT TITLE: **NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR**

TOWN: **BERLIN**

DRAWING TITLE: **LIGHTING PNL. SCHD.-3 OF 3**

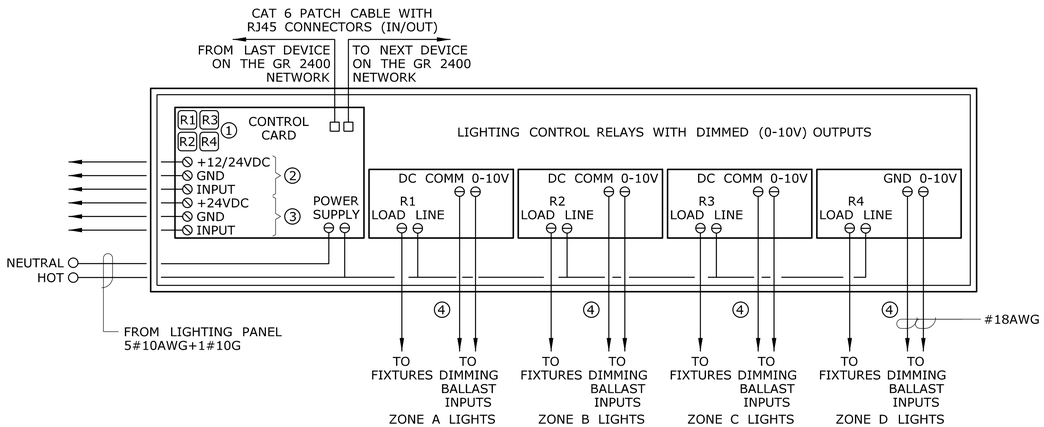
PROJECT NO. **170-3155**
DRAWING NO. **FLI-803**
SHEET NO. **01.13.058**



NOTES:

1. DAISY-CHAIN CAT. 6 PATCH CABLE WITH RJ45 CONNECTORS FROM DIGITAL DEVICE TO DIGITAL DEVICE.
2. REFER TO MANUFACTURERS INSTRUCTIONS FOR LONG DISTANCE RUNS BETWEEN DIGITAL DEVICES.
3. UP TO 4,000 FT. TOTAL BUS LENGTH.
4. CRIMP AND TEST EACH CABLE WITH ALAN CIRCUIT TESTER PRIOR TO INSTALLATION.
5. SEE DWG. FLI-805 FOR PANEL RELAY SCHEDULE.

TYPICAL CONTROL SYSTEM SINGLE LINE DIAGRAM

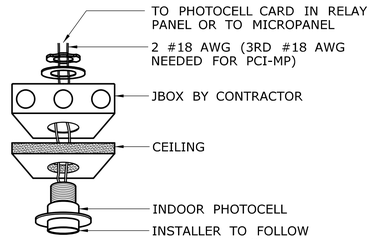


NOTES:

1. MANUAL SWITCH BUTTONS FOR EACH RELAY.
2. OCCUPANCE SENSOR INPUTS, TYPICAL OF 2, WILL OPERATE WITH ANY LOW VOLTAGE OCCUPANCY SENSOR. POWER SUPPLY OUT FOR 12V, 15V OR 24V SENSORS, 3#18 AWG SHIELDED.
3. PHOTOCELLS INPUTS, TYPICAL OF 2, SPECIFY INDOOR PHOTOCELL (PCI) 3#18 AWG SHIELDED. PHOTOCELLS MUST BE ABLE TO CONTROL RELAYS AT EXACT FOOTCANDLE LEVELS (CALLED TRIGGERS). TRIGGERS SHALL BE ADJUSTABLE FOR EACH RELAY, AND SHALL BE PROGRAMMED FROM THE DTC IN THE MASTER RELAY PANEL OR FROM A DESKTOP COMPUTER.
4. MATRIXABLE CONTACT CLOSURE INPUTS PROGRAMMABLE FOR MOMENTARY OR MAINTAINED TYPE SWITCHES, INCLUDING STANDARD STRAP MOUNT WALL SWITCHES.
5. LIGHTING RELAYS: N/C, ZERO CROSS, 20A, 277V.

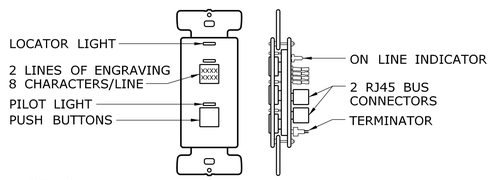
TYPICAL GR 2400I (2404 AND 2408) - DIM WIRING DETAIL

SCALE: NTS



INDOOR PHOTOCELL

SCALE: NTS

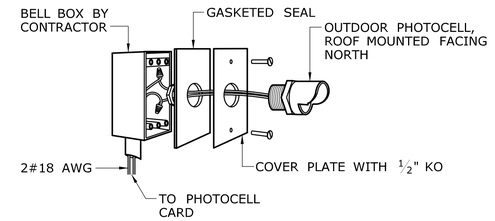


NOTES:

1. SWITCH BUTTONS ARE FACTORY ENGRAVED.
2. PUSH BUTTONS MAY CONTROL ANY RELAY(S) IN ANY COMBINATION.
3. LED PILOT LIGHTS INDICATE STATUS.
4. SWITCH LINKED TO THE GR 2400 DIGITAL BUS VIA CAT. 5 PATCH CABLE WITH RJ45 CONNECTORS.
5. DECORA STYLE FACE PLATE BY CONTRACTOR.

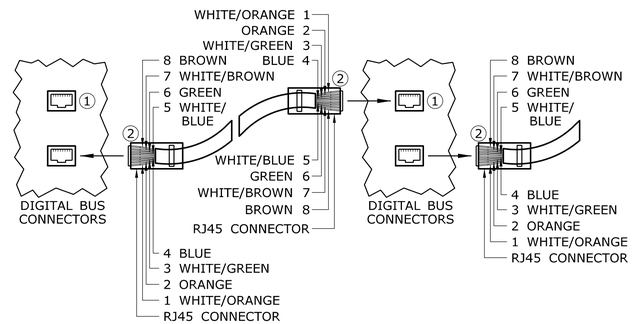
CHELSEA DIGITAL SWITCH

SCALE: NTS



OUTDOOR PHOTOCELL

SCALE: NTS



1. RJ45 DIGITAL BUS CONNECTORS ARE LOCATED ON EVERY DIGITAL DEVICE (DIGITAL DEVICES ARE DEFINED AS: RELAY PANELS, DIGITAL SWITCHES AND ALL DIGITAL ACCESSORIES).
2. RJ45 CONNECTORS USE THE SAME COLOR CODING AS ETHERNET, AND ARE MADE AS STRAIGHT THROUGH CABLES. CROSS OVER CABLES WILL CAUSE SYSTEM FAILURE. ALL CABLES SUPPLIED BY CONTRACTOR.

TYPICAL LOW VOLTAGE NETWORK HOOK UP

SCALE: NTS

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 2/26/2014

DESIGNER/DRAFTER: D.CHERBELEATA
CHECKED BY: D. NEWMAN

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296_007_-04_FLI_-804.dgn

SIGNATURE/BLOCK:

Hatch Mott MacDonald
Suite 100, North Lobby
400 Blue Hill Drive
Westwood, MA 02090

PROJECT TITLE:
NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR

TOWN: **BERLIN**

DRAWING TITLE: **LIGHTING CONTROL ONE-LINE DIAGRAM**

PROJECT NO. **170-3155**
DRAWING NO. **FLI-804**
SHEET NO. **01.13.059**

ID: LCP 1A
LOCATION: ELECTRICAL ROOM EAST
SUPPLY CIRCUIT: LPA1-14 VOLTAGE: 277V

RELAY PANEL SCHEDULE - LCP 1A - PLATFORM-NORMAL

RELAY	ZONE	TYPE	SOURCE	DESCRIPTION	RELAY	ZONE	TYPE	SOURCE	DESCRIPTION
1	P-A	NC	LPA1	LPA1-1, 3, 5	2	P-B	NC	LPA1	LPA1-2, 4, 6
3	P-C	NC	LPA1	LPA1-8, 10, 12	4	P-D	NC	LPA1	LPA1-15, 16, 18, 20
5				SPARE	6				SPARE
7				SPARE	8	P-H	NC	LPA1	LPA1-7, 9, 11

ID: LCP 1B
LOCATION: ELECTRICAL ROOM WEST
SUPPLY CIRCUIT: LPB1-14 VOLTAGE: 277V

RELAY PANEL SCHEDULE - LCP 1B - PLATFORM-NORMAL

RELAY	ZONE	TYPE	SOURCE	DESCRIPTION	RELAY	ZONE	TYPE	SOURCE	DESCRIPTION
1	P-A	NC	LPB1	LPB1-1, 3, 5	2	P-B	NC	LPB1	LPB1-2, 4, 6
3	P-C	NC	LPB1	LPB1-7, 9, 11	4	P-D	NC	LPB1	LPB1-8, 10, 12
5				SPARE	6				SPARE
7				SPARE	8				SPARE

ID: LCP 2A
LOCATION: ELECTRICAL ROOM EAST
SUPPLY CIRCUIT: LPA1-14 VOLTAGE: 277V

RELAY PANEL SCHEDULE - LCP 2A - STATION-NORMAL

RELAY	ZONE	TYPE	SOURCE	DESCRIPTION	SENSOR ZONE	RELAY	ZONE	TYPE	SOURCE	DESCRIPTION	SENSOR ZONE
1	S-A	NC	LPA2	LPA2-1, 7	A	2	S-B	NC	LPA2	LPA2-2	B
3	S-C	NC	LPA2	LPA2-13, 15		4	S-C	NC	LPA2	LPA2-4, 6	C
5				SPARE		6				SPARE	
7				SPARE		8				SPARE	

ID: LCP 2B
LOCATION: ELECTRICAL ROOM WEST
SUPPLY CIRCUIT: LPB1-14 VOLTAGE: 277V

RELAY PANEL SCHEDULE - LCP 2B - STATION-NORMAL

RELAY	ZONE	TYPE	SOURCE	DESCRIPTION	SENSOR ZONE	RELAY	ZONE	TYPE	SOURCE	DESCRIPTION	SENSOR ZONE
1	S-A	NC	LPB2	LPB2-1, 4	A	2	S-B	NC	LPB2-2	LPB1-2	B
3				SPARE		4	S-C	NC	LPA2	LPA2-4, 6	C
5				SPARE		6				SPARE	
7				SPARE		8				SPARE	

ID: LCP 3A
LOCATION: ELECTRICAL ROOM EAST
SUPPLY CIRCUIT: LPA1-14 VOLTAGE: 277V

RELAY PANEL SCHEDULE - LCP 3A - PLATFORM-EMERGENCY

RELAY	ZONE	TYPE	SOURCE	DESCRIPTION	RELAY	ZONE	TYPE	SOURCE	DESCRIPTION
1	PE-A	NC	EPA1	EPA1-1, 3, 5	2	PE-B	NC	EPA1	EPA1-2, 4, 6
3	PE-C	NC	EPA1	EPA1-13, 15, 17	4				SPARE
5				SPARE	6				SPARE
7				SPARE	8				SPARE

ID: LCP 3B
LOCATION: ELECTRICAL ROOM WEST
SUPPLY CIRCUIT: LPB1-14 VOLTAGE: 277V

RELAY PANEL SCHEDULE - LCP 3B - PLATFORM-EMERGENCY

RELAY	ZONE	TYPE	SOURCE	DESCRIPTION	RELAY	ZONE	TYPE	SOURCE	DESCRIPTION
1	PE-A	NC	EPB1	EPB1-1, 3, 5	2	PE-B	NC	EPB1	EPB1-2, 4, 6
3	PE-C	NC	EPB1	EPB1-8, 10, 12	4			EPB1	EPB1-13, 15, 17
5				SPARE	6				SPARE
7				SPARE	8				SPARE

ID: LCP 4A
LOCATION: ELECTRICAL ROOM EAST
SUPPLY CIRCUIT: LPA1-14 VOLTAGE: 277V

RELAY PANEL SCHEDULE - LCP 4A - STATION-EMERGENCY

RELAY	ZONE	TYPE	SOURCE	DESCRIPTION	SENSOR ZONE	RELAY	ZONE	TYPE	SOURCE	DESCRIPTION	SENSOR ZONE
1	SE-A	NC	EPA1	EPA1-7	A	2	SE-B	NC	EPA1	EPA1-9	C
3	SE-C	NC	EPA1	EPA1-11	B	4				SPARE	
5				SPARE		6				SPARE	
7				SPARE		8				SPARE	

ID: LCP 4B
LOCATION: ELECTRICAL ROOM WEST
SUPPLY CIRCUIT: LPB1-14 VOLTAGE: 277V

RELAY PANEL SCHEDULE - LCP 4B - STATION-EMERGENCY

RELAY	ZONE	TYPE	SOURCE	DESCRIPTION	SENSOR ZONE	RELAY	ZONE	TYPE	SOURCE	DESCRIPTION	SENSOR ZONE
1	SE-A	NC	EPB1	EPB1-7	A	2	SE-B	NC	EPB1	EPB1-11	B
3	SE-C	EPA1-9		SPARE	C	4			EPB1	SPARE	
5				SPARE		6			EPB1	SPARE	
7				SPARE		8			EPB1	SPARE	

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: D.CHERBELEATA
CHECKED BY: D. NEWMAN

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296_007_04_FLI_805.dgn

SIGNATURE/ BLOCK:

Hatch Mott MacDonald
Suite 100, North Lobby
400 Blue Hill Drive
Westwood, MA 02090

PROJECT TITLE:
NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR

TOWN: BERLIN

DRAWING TITLE:
LIGHTING CONTROL RELAY PANEL SCHEDULE

PROJECT NO. 170-3155
DRAWING NO. FLI-805
SHEET NO. 01.13.060

STATION LIGHTING - EQUIPMENT SCHEDULE

FIXTURE TYPE	DESCRIPTION	SYMBOL	LAMP	VOLTAGE	MOUNTING	MOUNTING HEIGHT	REMARKS
A	LED		30W	277V	PENDANT	10'-0" PLATFORM 9'-0" PLATFORM RAMPS	PLATFORM, PLATFORM RAMPS AND STAIRS PEERLESS STATION STM9 44L-8FT-BI-DIRECTIONAL-R8-277-D32-SCT-LP835-F3A-24-C099 WHITE
B	LED		100W	277V	SURFACE	7.8 FT.	GATEWAY CANOPY - WALLINGFORD ONLY VOIGT LTG - TTMO SLOTTLIGHTER T307-LED-750LM-DSL ASYM-SM 4'-WH 277
B1	LED		50W	277V	SURFACE	7.8 FT.	GATEWAY CANOPY - WALLINGFORD ONLY VOIGT LIGHTING; TTMO SLOTTLIGHTER T30FSL-LED-750LM-D1 ASYM-SM 2'-WH 277
C	LED		8W	277V	COVE	VARIES ALONG COVE	PASSENGERS OVERPASS PHILLIPS EW COVE MX POWERCORE 3500K-MEDIUM-12-277VAC UL-1FT 1C ITEM# 523-000050-09
D	LED		100W	277V	PENDANT	VARIES WITH CEILING HEIGHT	PASSENGERS OVERPASS LUMENPULSE LUMENBEAM; LBGP-277-35K-WFL-SCAN4-LSLH-CC RAL8019-DIM
EX	LED		5W	277V	SIGN		PLATFORM, STATION DUAL LITE EXIT LIGHTING, LED1ACRWW
F	LED		50W	277V	CEILING	CEILING	MAINTAINANCE ROOMS, SNOW MELT SHEDS, UTILITY ROOMS LITHONIA LIGHTING; LED WRAPAROUND LBL4 LP835-753573917601-4'-4000-3500K-#12ACR-277V-50W
G1	LED		14W	277V	SCONCE	VARIES SEE ARCH. DWGS.	STATION STAIRS, BRIDGE US ARCHITECTURAL LIGHTING; 3500K-#12OCR-277V-50W CAMBER CBR1-LED 277-RALB019
G2	LED		16W	277V	RECESSED DOWNLIGHT	CEILING	STATIONS - 2ND FLOOR GOTHAM; 4"EVO-2700K-10-6AR-WD-LS-277
G3	LED		35W	277V	RECESSED DOWNLIGHT	CEILING	STATIONS - 2ND FLOOR GOTHAM; 6"EVO-3500K-22-6AR-MD-LS-277
H	LED		60W	277V	CEILING	14 FT. (9 FT. LANDING)	TOWER 1ST FLOOR AND 2ND FLOOR LITHONIA PROTEON PTNSL4-WD-277-LP841-DWH-CRE-AFAC 120 WITH UPLIGHT MODULE
I	LED		14W	277V	SCONCE	8 FT.	TOWER ENTRANCE (FACADE) US ARCHITECTURAL LIGHTING; CAMBER CBR2-LED 277-RAL8019
K	LED		20W	277V	WALL	3 FT.	ELEVATOR PIT PHOENIX; VA-W-LED-13-WW-GPC-G-(120V)
L	LED		20W	277V	RECESSED	CEILING	PASSENGER SHELTERS (PLATFORMS) LITHONIA LIGHTING; ZL2-L24-2600L-277-LP835-CL
P1	LED		2X50W+ 1X70W	277V	POLE	13 FT.	DOMUS50 DMS50-SG-RM/40W49LED4K-ES-LE2S-CUSTOMIZED POLE PER DWG. ARC-512 AND ARC-513; BRACKET PC-3B-BKTX DOMUS50 DMS50-SG-RM/70W64LED4K-ES-LE2S-BLACK
P2	LED		2X50W	277V	POLE	13 FT.	DOMUS50 DMS50-SG-RM/40W49LED4K-ES-LE2S-CUSTOMIZED POLE PER DWG. ARC-512 AND ARC-513; BRACKET PC-3B-BKTX-BLACK
R1	LED	41"	8W	277V	RAIL	RAIL	RAIL MOUNTED/FRONT STAIRS AND RAMPS WAGNER LUMENRAIL; GR2190.4 LENS: LULS 3K60TF-42
R2	LED	21"	4W	277V	RAIL	RAIL	RAIL MOUNTED/FRONT STAIRS AND RAMPS WAGNER LUMENRAIL; GR2190.4 LENS: LULS 3K60TF-24
T	LED		24W	277V	WALL	8.2 FT.	ENTRANCE/GATEWAY CANOPIES VISA LIGHTING; ADVANTUS DV3100-24-LED NWT12-120-SWF(SL)-OBRZ-DIM10
S	LED		15W	120V	EMBEDDED	2 FT.	SYSTEM ALUX STEP-LIGHT S.4615W14 WITH RECESS BOX S.4523A (OLD BERLIN STATION)

NOTES:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL FIELD COORDINATIONS AND MEASUREMENTS.
2. SOME FIXTURE TYPES CHANGED JUST BEFORE 100% SUBMISSION AND THEY MIGHT NOT BE REPRESENTED IN THE PANEL SCHEDULES.
3. CONTRACTOR SHALL SPECIFY DIMMING CAPABILITIES OPTIONS FOR ALL FIXTURES EXCEPT "EX", "F" & "K".

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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: **D.CHERBELEATA**

CHECKED BY: **D. NEWMAN**

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296_007__04_FLI__901.dgn

SIGNATURE/ BLOCK:

Hatch Mott MacDonald
Suite 100, North Lobby
400 Blue Hill Drive
Westwood, MA 02090

PROJECT TITLE: **NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR**

TOWN: **BERLIN**

DRAWING TITLE: **LIGHTING FIXTURE SCHEDULE**

PROJECT NO. **170-3155**

DRAWING NO. **FLI-901**

SHEET NO. **01.13.061**

COMMUNICATION:

ANTENNA

COMMUNICATION ENCLOSURE/RACK

(B) BLUE LIGHT/EMERGENCY CALL BOX

RB RADIO REBROADCAST REPEATER

TW TWO-WAY RADIO AMPLIFIER

D DOOR ACCESS CONTROL MONITORING POINT

(S) PUBLIC ADDRESS SPEAKER

PASSENGER INFORMATION DISPLAY SIGN TYPE E2

PASSENGER INFORMATION DISPLAY SIGN TYPE E3a/e

PASSENGER INFORMATION DISPLAY SIGN TYPE E8c

SIGN SCHEDULE

SIGN TYPE	USE/DESCRIPTION	CONTENT	MOUNTING
E2	NEXT TRAIN INFORMATION/DATE & TIME	VISUAL ECHO OF AUDIO ANNOUNCEMENTS	SUSPENDED, FROM CANOPY (DOUBLE-SIDED)
E3a	VARIABLE MESSAGING	VISUAL ECHO OF AUDIO ANNOUNCEMENTS	WALLMOUNT (SINGLE-SIDED)
E3e	VARIABLE MESSAGING	VISUAL ECHO OF AUDIO ANNOUNCEMENTS	SUSPENDED, FROM CANOPY (DOUBLE-SIDED)
E8a	TRAIN LISTING AND VARIABLE MESSAGING - SINGLE SCREEN	INFO LIST FOR MULTIPLE DEPARTURES & ARRIVALS MIXED IN TIME ORDER ALTERNATING WITH VARIABLE MESSAGE ANNOUNCEMENTS ON ONE SCREEN	WALLMOUNT (SINGLE-SIDED)
E8c	TRAIN LISTING AND VARIABLE MESSAGING	INFO LIST FOR MULTIPLE DEPARTURES & ARRIVALS MIXED IN TIME ORDER ALTERNATING WITH VARIABLE MESSAGE ANNOUNCEMENTS ON ONE SCREEN	CEILING HUNG (SINGLE-SIDED PENDANT MOUNT)

NOTES:

1. MOUNTING HEIGHT OF TELEPHONE PER ADA STANDARDS.
2. SIGN MOUNTING HEIGHT 8'-0" MINIMUM, SIGNS INSTALLED AS SHOWN ON PLANS.
3. PIDS SIGNAGE PER GRAPHIC SIGNAGE STANDARD MANUAL (LATEST EDITION).
4. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS OF PIDS.
5. REFER TO STRUCTURAL DRAWINGS FOR MOUNTING DETAILS TO STEEL.

ABBREVIATIONS:

TVM	TICKET VENDING MACHINE
PIDS	PASSENGER INFORMATION DISPLAY SYSTEM
VSS	VIDEO SURVEILLANCE SYSTEM
◁	TELEPHONE /DATA OUTLET

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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: W. CAREY
CHECKED BY: D. NEWMAN
NOT TO SCALE

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296_007_-_04_FCI_-_001.dgn

SIGNATURE/ BLOCK:

STATE OF CONNECTICUT · ROBIN K. GRAHAM · 25 · LICENSED PROFESSIONAL ENGINEER

Hatch Mott MacDonald
Suite 100, North Lobby
400 Blue Hill Drive
Westwood, MA 02090

PROJECT TITLE:
NEW HAVEN-HARTFORD SPRINGFIELD RAIL CORRIDOR

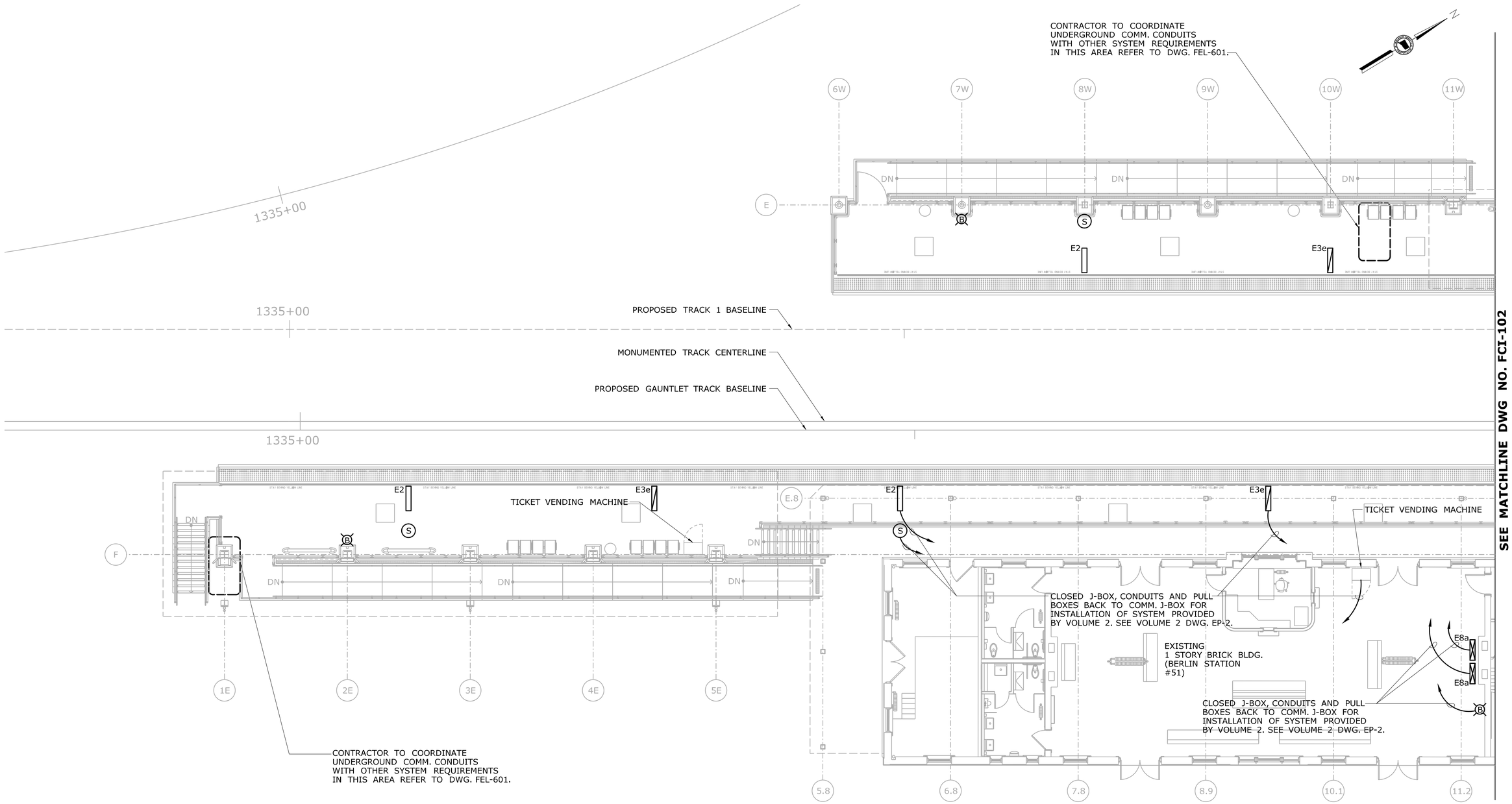
TOWN: BERLIN

DRAWING TITLE:
COMM. SYSTEMS GEN. & LEGEND NOTES

PROJECT NO. 170-3155
DRAWING NO. FCI-001
SHEET NO. 01.13.062

NOTES:

1. REFER TO LEGEND SYMBOLS ON DWG. FCI-001.
2. REFER TO RISER DIAGRAMS ON DWGS. FCI-701/FCI-702.



COMMUNICATION SYSTEMS PLAN - PART A

SCALE: 1/8" = 1'-0"

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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: **W. CAREY**

CHECKED BY: **D. NEWMAN**

SCALE: 1/8" = 1'-0"

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296_007_-_04_FCI_-_101.dgn

SIGNATURE/ BLOCK:

Hatch Mott MacDonald
Suite 100, North Lobby
400 Blue Hill Drive
Westwood, MA 02090

PROJECT TITLE:
NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR

TOWN: **BERLIN**

DRAWING TITLE: **COMM. SYSTEMS PLAN - PART A**

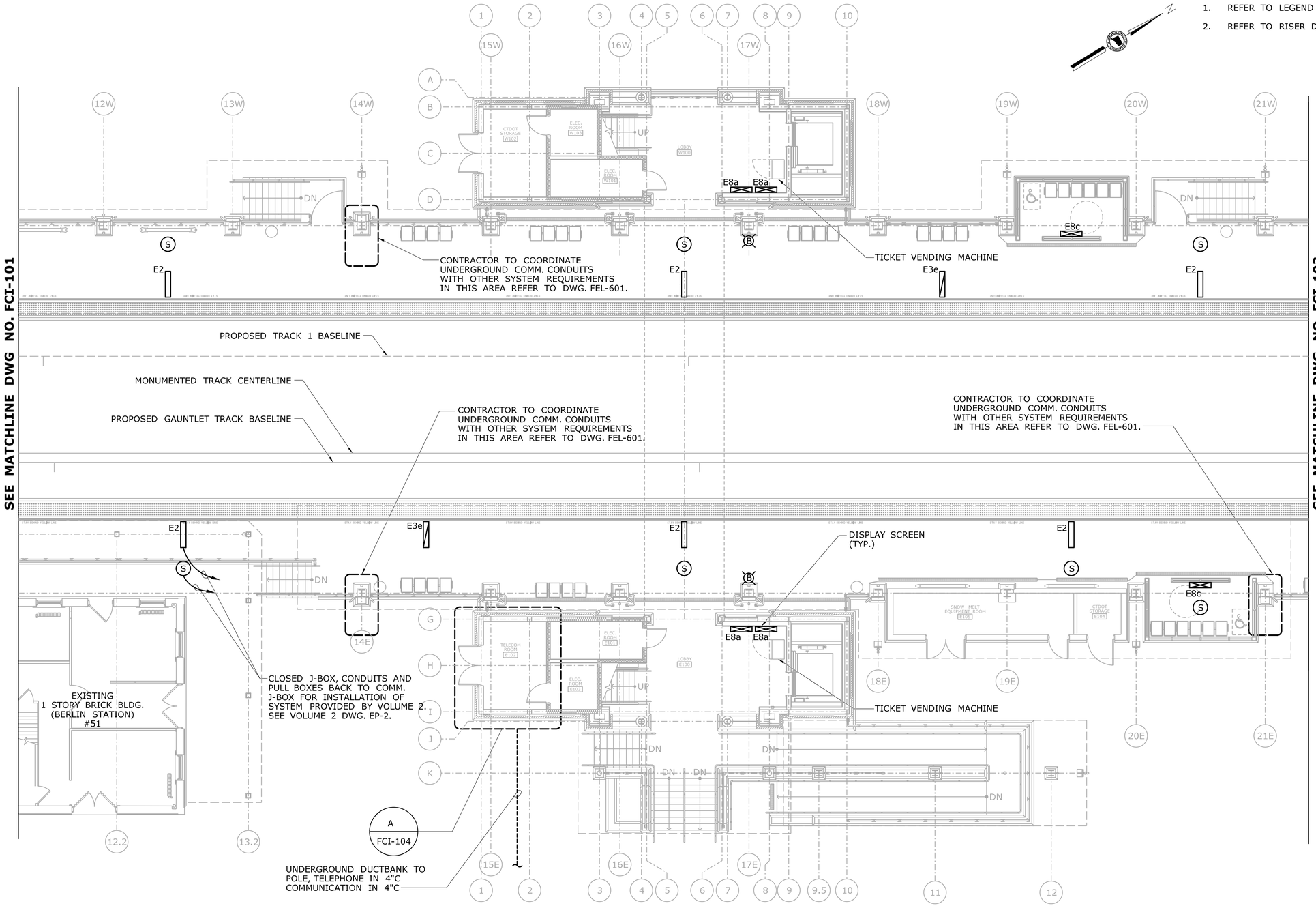
PROJECT NO. **170-3155**

DRAWING NO. **FCI-101**

SHEET NO. **01.13.063**

NOTES:

1. REFER TO LEGEND SYMBOLS ON DWG. FCI-001.
2. REFER TO RISER DIAGRAMS ON DWGS. FCI-701/FCI-702.



COMMUNICATION SYSTEMS PLAN - PART B

SCALE: 1/8" = 1'-0"

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: W. CAREY
CHECKED BY: D. NEWMAN
SCALE: 1/8" = 1'-0"

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296_007_-_04_FCI_-_102.dgn

SIGNATURE/ BLOCK:

Hatch Mott MacDonald
Suite 100, North Lobby
400 Blue Hill Drive
Westwood, MA 02090

PROJECT TITLE:
NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR

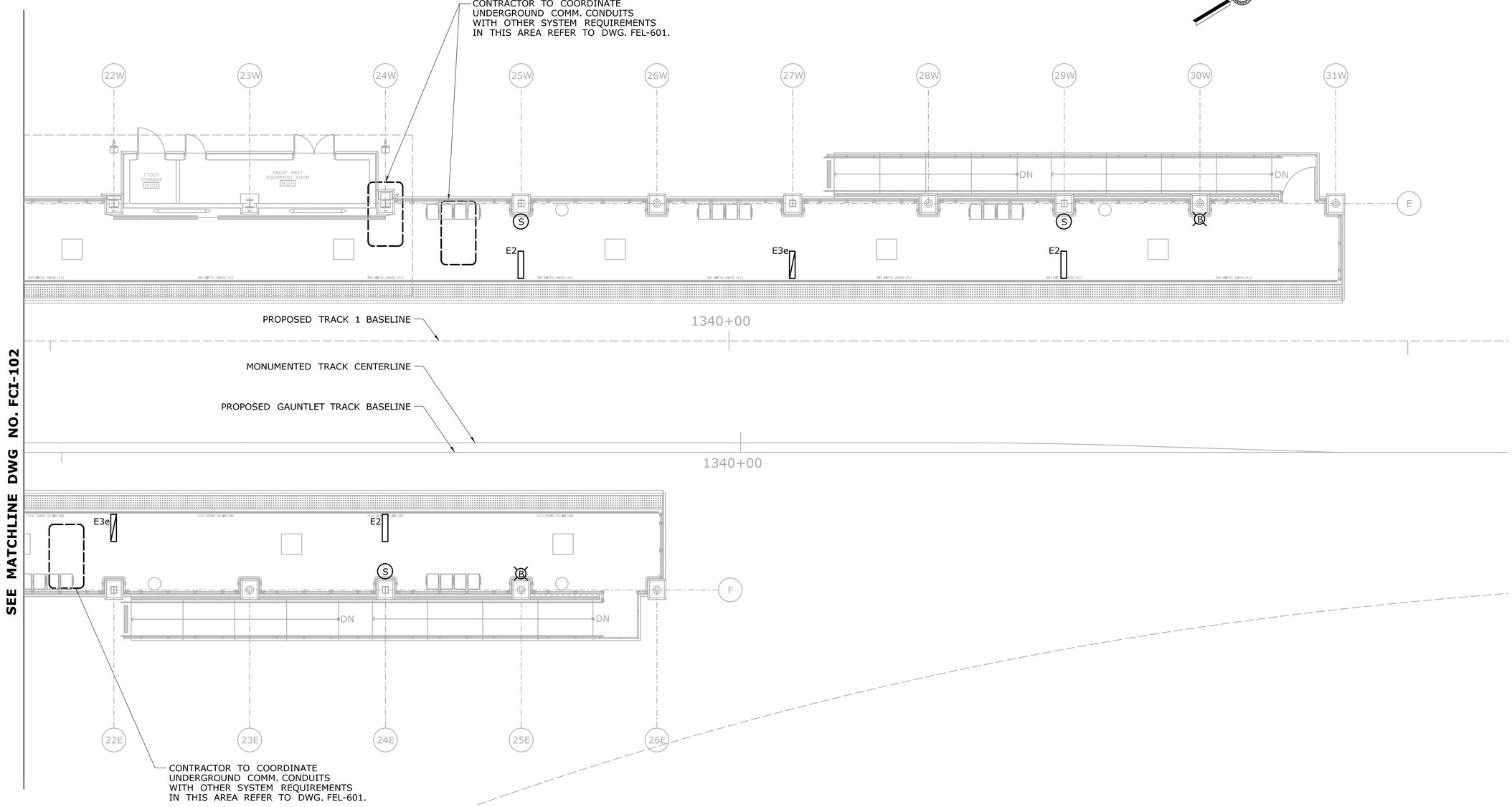
TOWN: **BERLIN**

DRAWING TITLE: **COMM. SYSTEMS PLAN - PART B**

PROJECT NO. **170-3155**
DRAWING NO. **FCI-102**
SHEET NO. **01.13.064**

NOTES:

1. REFER TO LEGEND SYMBOLS ON DWG. FCI-001.
2. REFER TO RISER DIAGRAMS ON DWGS. FCI-701/FCI-702.



COMMUNICATION SYSTEMS PLAN - PART C

SCALE: $\frac{1}{8}$" = 1'-0"

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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: **W. CAREY**

CHECKED BY: **D. NEWMAN**

SCALE: $\frac{1}{8}$" = 1'-0"

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296_007_04_FCI_103.dgn

SIGNATURE/ BLOCK:

Hatch Mott MacDonald
Suite 100, North Lobby
400 Blue Hill Drive
Westwood, MA 02090

PROJECT TITLE:
NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR

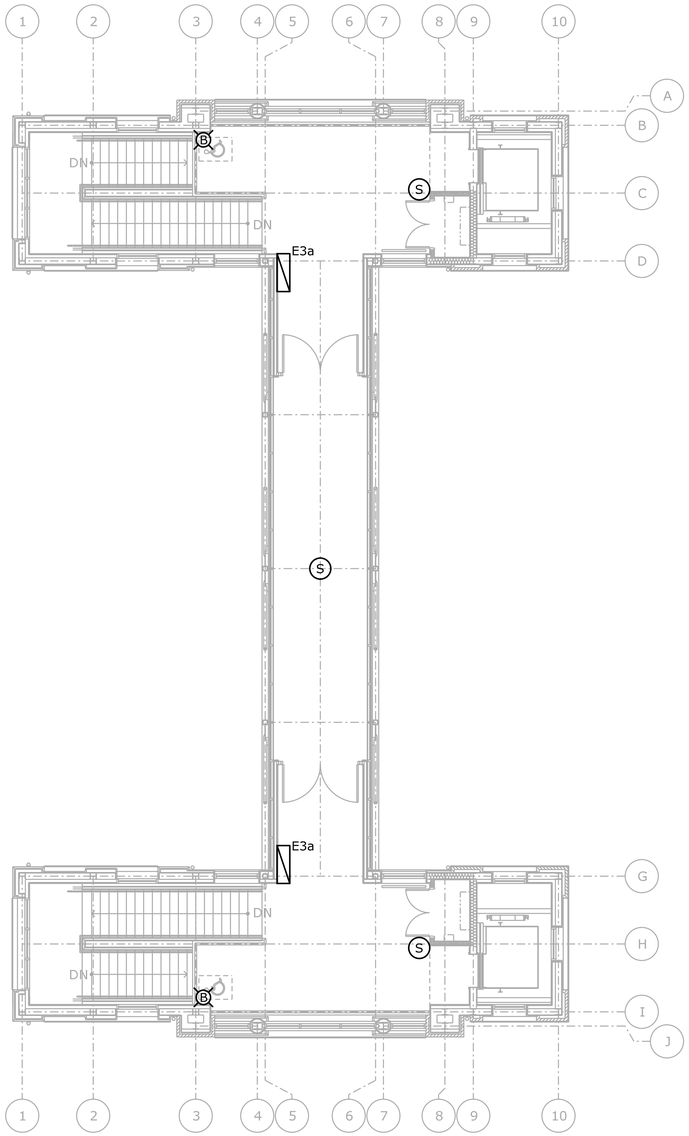
TOWN: **BERLIN**

DRAWING TITLE: **COMM. SYSTEMS PLAN - PART C**

PROJECT NO. **170-3155**

DRAWING NO. **FCI-103**

SHEET NO. **01.13.065**

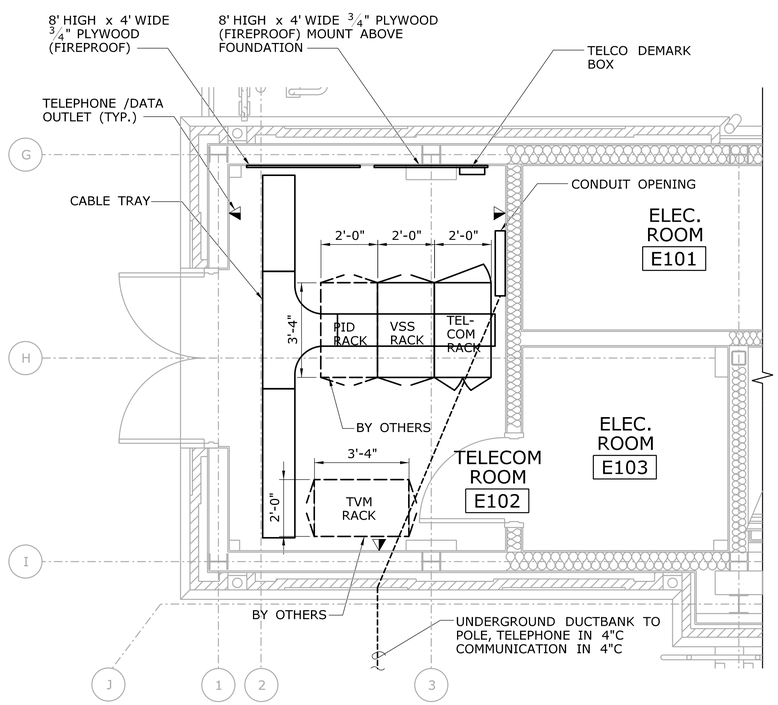


COMMUNICATION SYSTEMS PLAN - PEDESTRIAN BRIDGE

SCALE: 1/8" = 1'-0"

NOTES:

1. REFER TO LEGEND SYMBOLS ON DWG. FCI-001.
2. REFER TO RISER DIAGRAMS ON DWGS. FCI-701/FCI-702.



A / FCI-102 **COMMUNICATION ROOM LAYOUT**

SCALE: 3/8" = 1'-0"

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: W. CAREY
CHECKED BY: D. NEWMAN
SCALE AS NOTED

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296_007_04_FCI_104.dgn

SIGNATURE/ BLOCK:

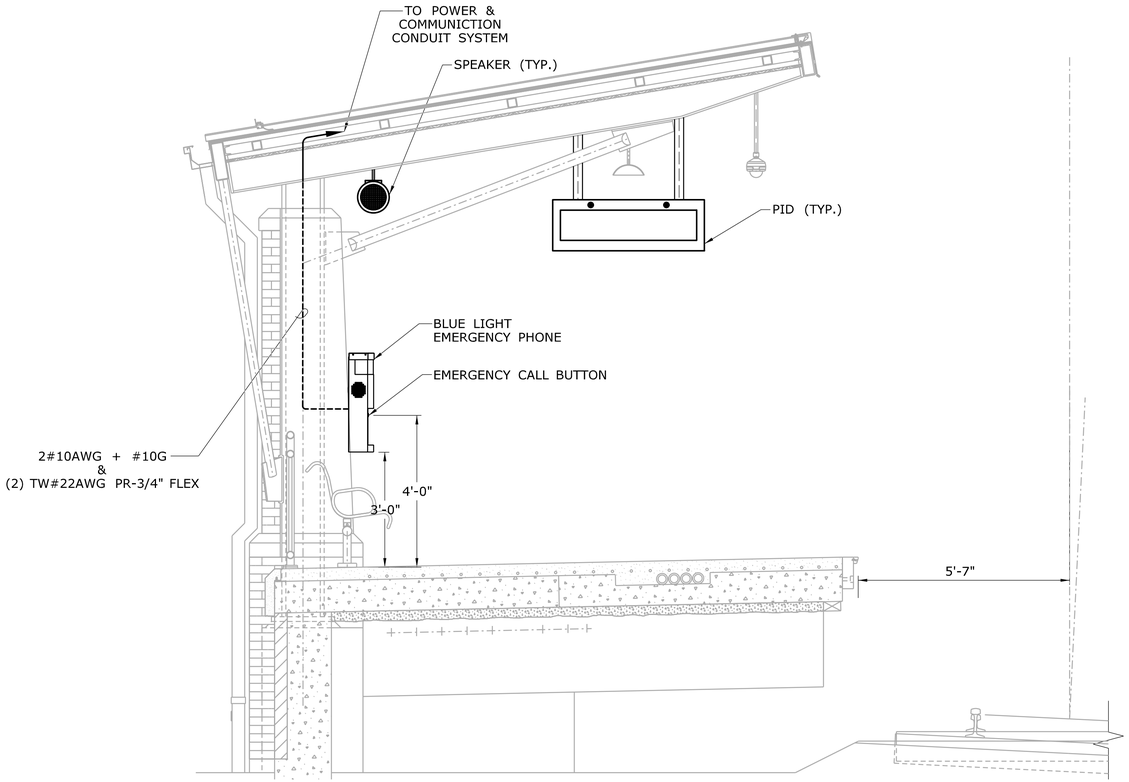
Hatch Mott MacDonald
Suite 100, North Lobby
400 Blue Hill Drive
Westwood, MA 02090

PROJECT TITLE:
NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR

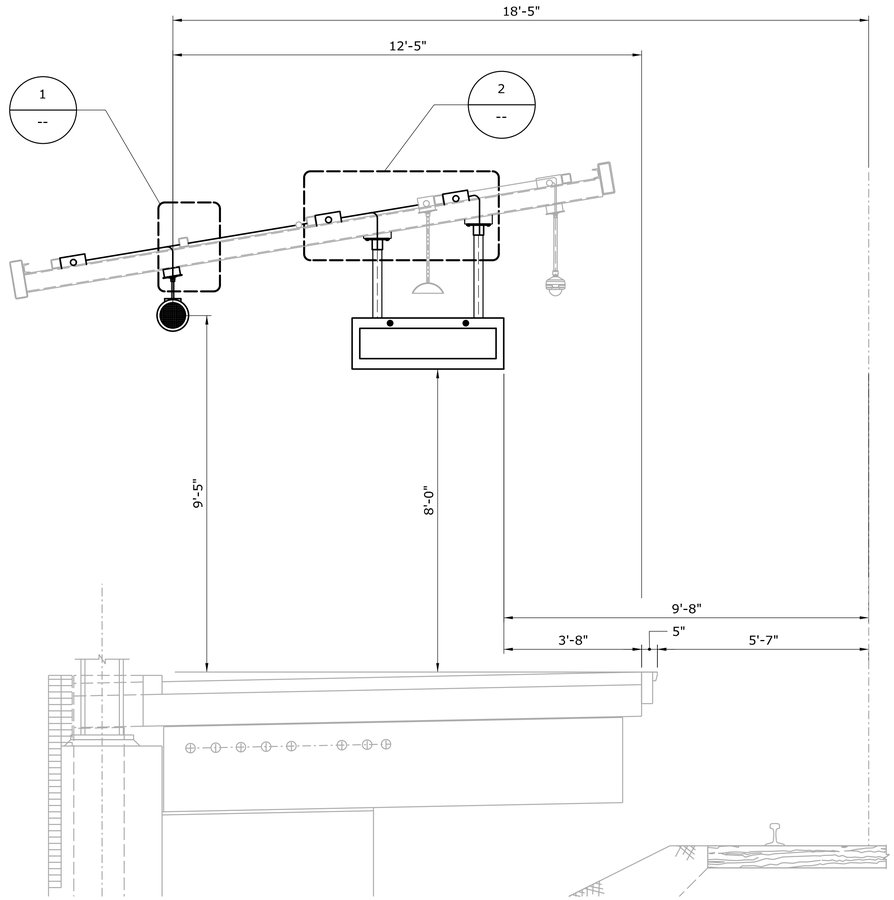
TOWN: BERLIN

DRAWING TITLE:
COMM. SYSTEMS PLAN - PEDESTRIAN BRIDGE

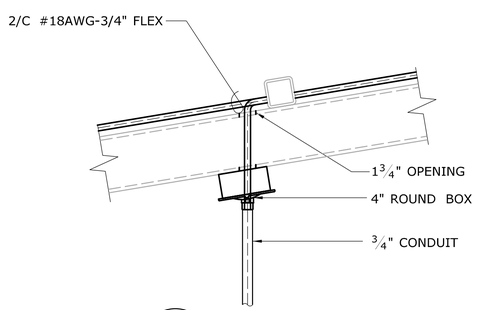
PROJECT NO. 170-3155
DRAWING NO. FCI-104
SHEET NO. 01.13.066



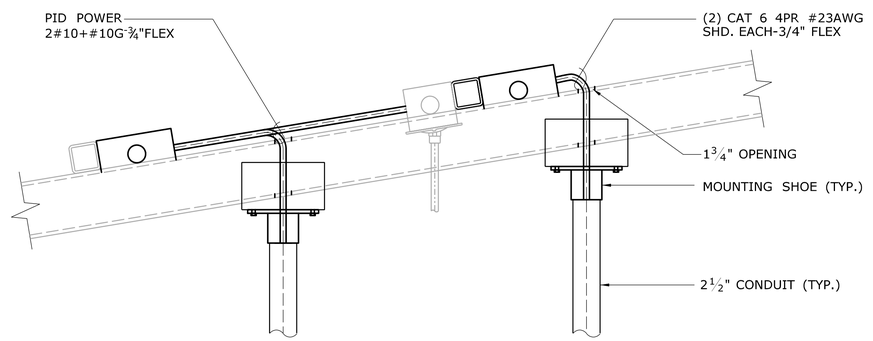
COMMUNICATION EQUIPMENT MOUNTING DETAILS
SCALE: 1/2" = 1'-0"



COMMUNICATION EQUIPMENT MOUNTING DETAILS
SCALE: 1/2" = 1'-0"



1 -- **DETAIL 1**
SCALE: 1 1/2" = 1'-0"



2 -- **DETAIL 2**
SCALE: 1 1/2" = 1'-0"

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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: **W. CAREY**
CHECKED BY: **D. NEWMAN**
SCALE AS NOTED

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296_007_04_FCI_601.dgn

SIGNATURE/ BLOCK:

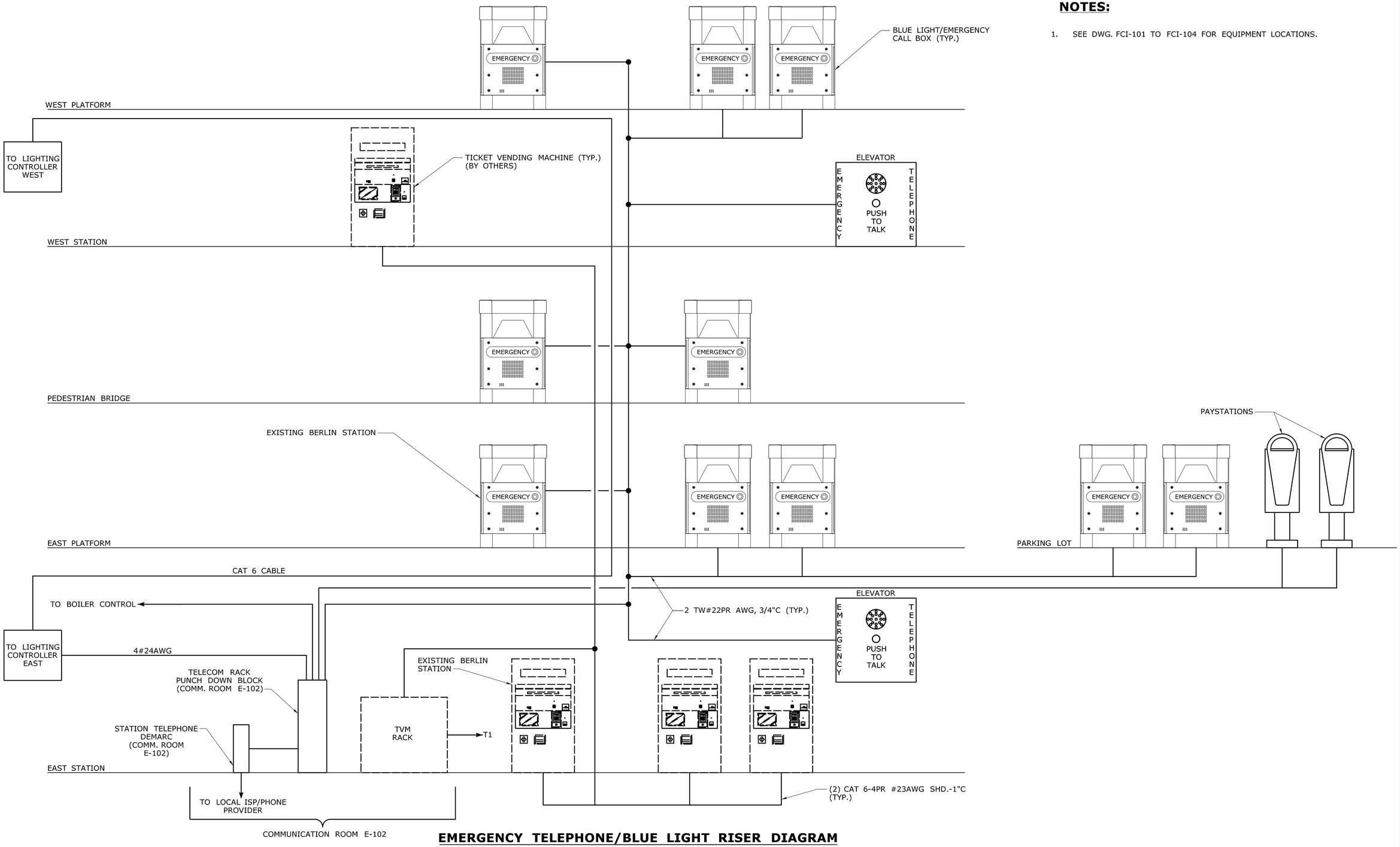
Hatch Mott MacDonald
Suite 100, North Lobby
400 Blue Hill Drive
Westwood, MA 02090

PROJECT TITLE:
NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR

TOWN: **BERLIN**

DRAWING TITLE: **COMM. SYSTEMS DETAILS**

PROJECT NO. **170-3155**
DRAWING NO. **FCI-601**
SHEET NO. **01.13.067**



NOTES:

1. SEE DWG. FCI-101 TO FCI-104 FOR EQUIPMENT LOCATIONS.

EMERGENCY TELEPHONE/BLUE LIGHT RISER DIAGRAM

NOT TO SCALE

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: **W. CAREY**

CHECKED BY: **D. NEWMAN**

NOT TO SCALE

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296_007_04_FCI_701.dgn

SIGNATURE/ BLOCK:

Hatch Mott MacDonald
Suite 100, North Lobby
400 Blue Hill Drive
Westwood, MA 02090

PROJECT TITLE:

NEW HAVEN-HARTFORD SPRINGFIELD RAIL CORRIDOR

TOWN: **BERLIN**

DRAWING TITLE: **COMM. SYS.-BL LIGHT, TVM & EMER. TEL. RISER DIAG.**

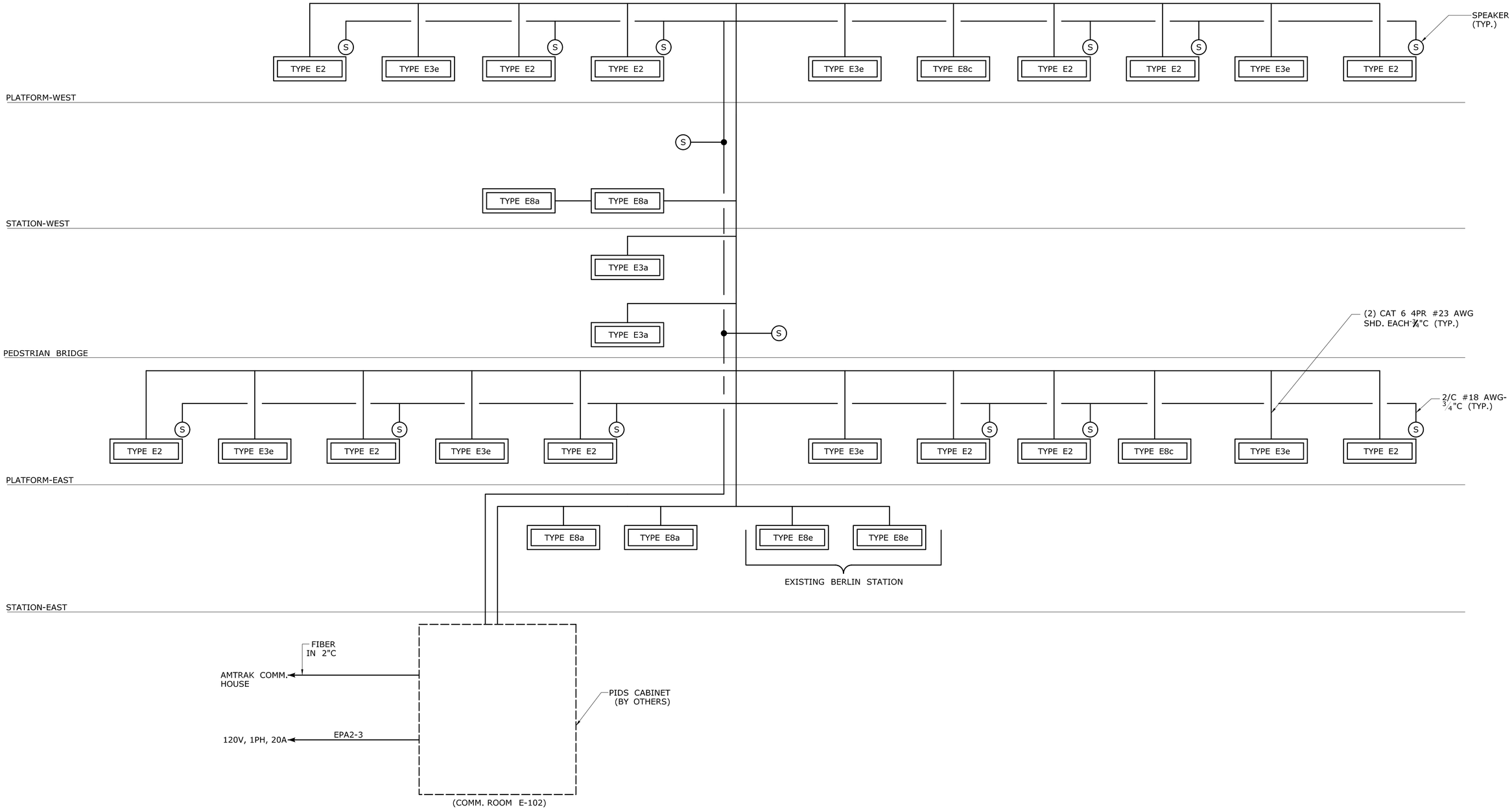
PROJECT NO. **170-3155**

DRAWING NO. **FCI-701**

SHEET NO. **01.13.068**

NOTES:

1. REFER TO DWG. FCI-101 TO FCI-104 FOR EQUIPMENT LOCATIONS.
2. REFER TO FCI-001 FOR SIGN TYPE INFORMATION.



PIDS RISER DIAGRAM

NOT TO SCALE

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: W. CAREY
CHECKED BY: D. NEWMAN
NOT TO SCALE

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296_007_04_FCI_702.dgn

SIGNATURE/ BLOCK:

Hatch Mott MacDonald
Suite 100, North Lobby
400 Blue Hill Drive
Westwood, MA 02090

PROJECT TITLE:
NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR

TOWN: BERLIN

DRAWING TITLE:
COMM. SYSTEMS
PA/PIDS RISER DIAGRAM

PROJECT NO. 170-3155
DRAWING NO. FCI-702
SHEET NO. 01.13.069

SECURITY LEGEND:

PB	PUSHBUTTON
(camera symbol)	CAMERA
(dashed camera symbol)	FUTURE CAMERA
(filled camera symbol)	INFRARED CAMERA
B	DOOR BELL
DC	DOOR CONTACT
SCP	SECURITY SYSTEM CONTROL PANEL
EL	ELECTRIC DOOR LOCK
KS	KEY SWITCH
P	PANIC BAR

ABBREVIATIONS:

VSS VIDEO SURVEILLANCE SYSTEM

CAMERA SCHEDULE

CAMERA TYPE	ENCLOSURE TYPE	MOUNT TYPE	LENS TYPE	POWER SUPPLY	F/O CONNECTION	WIRE REQUIRED
C1	OUTDOOR WP/VANDAL RESISTANT WITH HEATER	WALL/POLE	5MP-4.5-10mm f1.6	EXTERNAL	EXTERNAL	-
C2	OUTDOOR WP/VANDAL RESISTANT WITH HEATER	PENDANT	5MP-4.5-10mm f1.6	EXTERNAL	EXTERNAL	-
C3	IR OUTDOOR WP/VANDAL RESISTANT WITH HEATER	PENDANT	5MP-4.5-10mm f1.6	EXTERNAL	EXTERNAL	-

NOTES:

1. ALL EQUIPMENT AND CONNECTIONS SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR.
2. SEE PLANS FOR CAMERA LOCATIONS.
3. ALL EQUIPMENT SHALL BE LATEST TECHNOLOGY WITH COMMERCIAL OFF THE SHELF AVAILABILITY PER AMTRAK STANDARDS.
4. THE CONTRACTOR SHALL INSURE CAMERA LOCATIONS ARE NOT OBSTRUCTED.
5. PROVIDE TWO FIXED CAMERAS WITHIN ONE ENCLOSURE VIEWING OPPOSITE DIRECTIONS.
6. CONTRACTOR SHALL PROVIDE OPTIMIZED CAMERA VIEWING ANGLE AND FIELD OF VIEW BASED ON SELECTED CAMERA SPECIFICATIONS.

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: **W. CAREY**

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NOT TO SCALE

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296_007__04_FAS__001.dgn

SIGNATURE/ BLOCK:

Hatch Mott MacDonald
Suite 100, North Lobby
400 Blue Hill Drive
Westwood, MA 02090

PROJECT TITLE: **NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR**

TOWN: **BERLIN**

DRAWING TITLE: **SECURITY GEN. NOTES, LEGEND & ABBREV.**

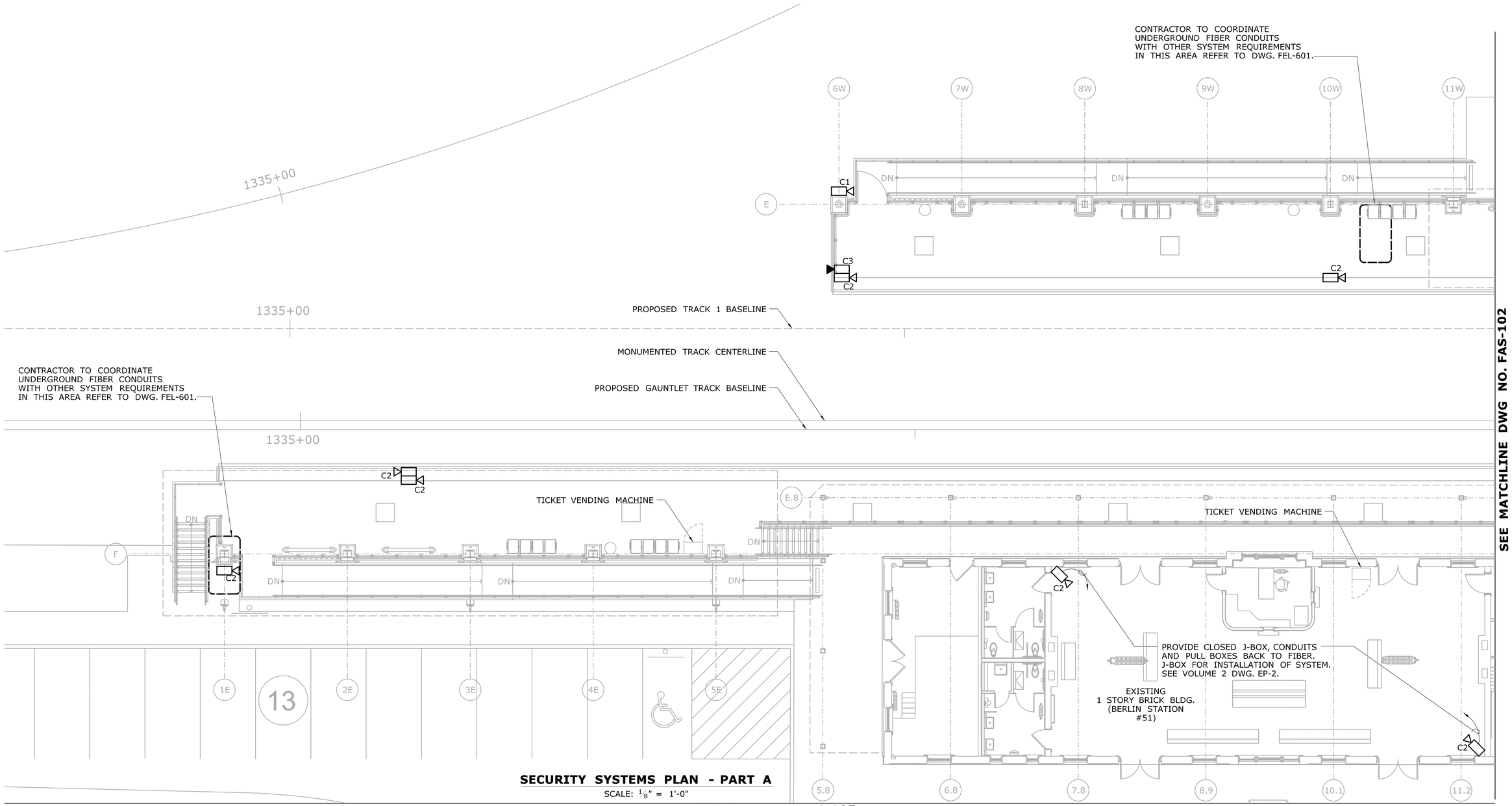
PROJECT NO. **170-3155**

DRAWING NO. **FAS-001**

SHEET NO. **01.13.070**

NOTES:

1. REFER TO LEGEND SYMBOLS ON DWG. FAS-001.
2. REFER TO RISER DIAGRAMS ON DWGS. FAS-701/FAS-702.



SECURITY SYSTEMS PLAN - PART A
SCALE: 1/8" = 1'-0"

SEE MATCHLINE DWG NO. FAS-105

SEE MATCHLINE DWG NO. FAS-102

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: **W. CAREY**
CHECKED BY: **D. NEWMAN**
SCALE: 1/8" = 1'-0"

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296_007_-04_FAS_-101.dgn

SIGNATURE/ BLOCK:

Hatch Mott MacDonald
Suite 100, North Lobby
400 Blue Hill Drive
Westwood, MA 02090

PROJECT TITLE:
NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR

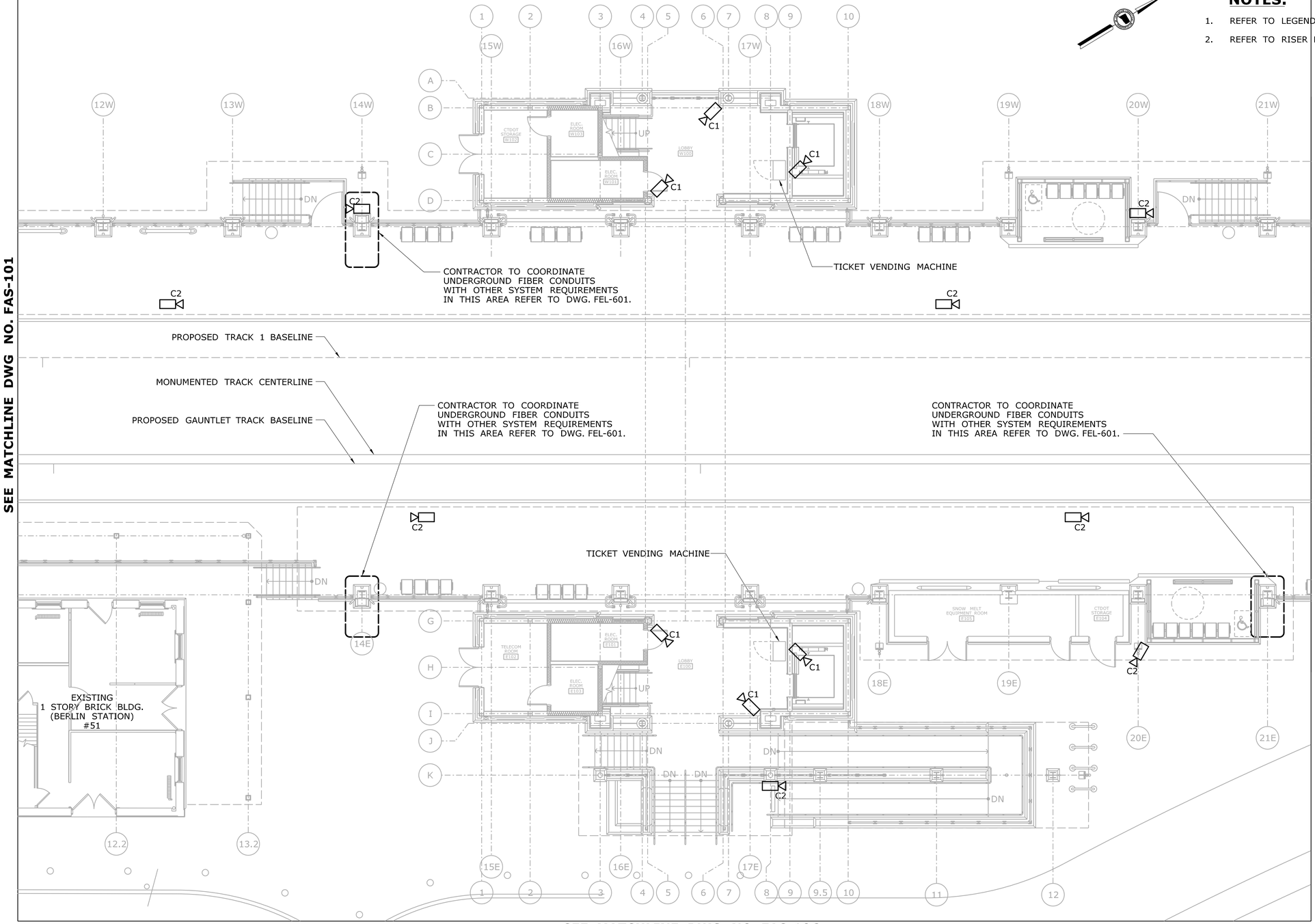
TOWN: **BERLIN**

DRAWING TITLE:
SECURITY SYSTEMS PLAN - PART A

PROJECT NO. **170-3155**
DRAWING NO. **FAS-101**
SHEET NO. **01.13.071**

NOTES:

1. REFER TO LEGEND SYMBOLS ON DWG. FAS-001.
2. REFER TO RISER DIAGRAMS ON DWGS. FAS-701/FAS-702.



SEE MATCHLINE DWG NO. FAS-106

SECURITY SYSTEMS PLAN - PART B

SCALE: 1/8" = 1'-0"

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: **W. CAREY**

CHECKED BY: **D. NEWMAN**

SCALE: 1/8" = 1'-0"

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296_007_-04_FAS_-102.dgn

SIGNATURE/ BLOCK:

Hatch Mott MacDonald
Suite 100, North Lobby
400 Blue Hill Drive
Westwood, MA 02090

PROJECT TITLE:
NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR

TOWN: **BERLIN**

DRAWING TITLE: **SECURITY SYSTEMS PLAN - PART B**

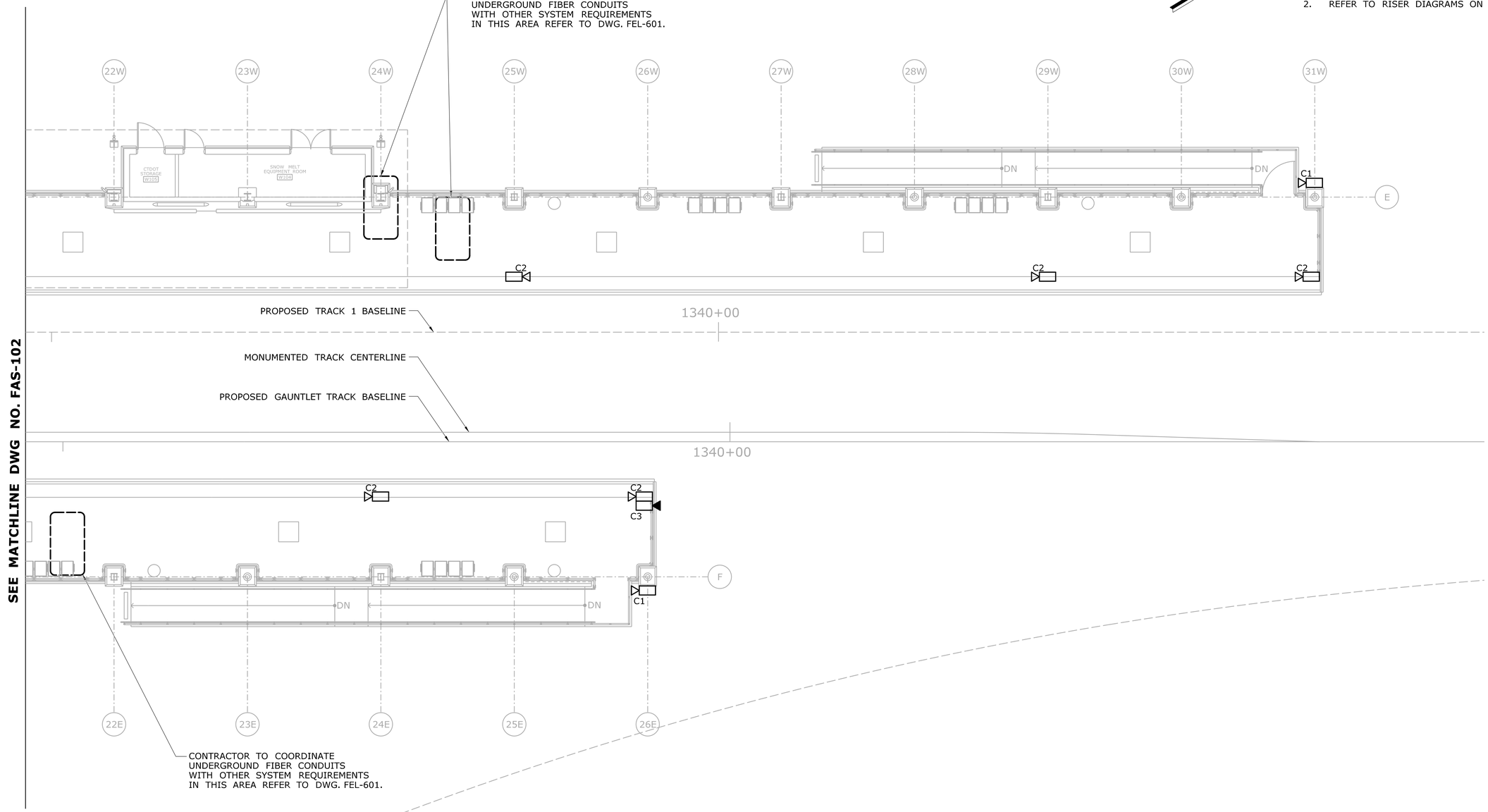
PROJECT NO. **170-3155**

DRAWING NO. **FAS-102**

SHEET NO. **01.13.072**

NOTES:

1. REFER TO LEGEND SYMBOLS ON DWG. FAS-001.
2. REFER TO RISER DIAGRAMS ON DWGS. FAS-701/FAS-702.



SECURITY SYSTEMS PLAN - PART C

SCALE: 1/8" = 1'-0"

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: W. CAREY
CHECKED BY: D. NEWMAN
SCALE: 1/8" = 1'-0"

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296_007_04_FAS_103.dgn

SIGNATURE/ BLOCK:

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Suite 100, North Lobby
400 Blue Hill Drive
Westwood, MA 02090

PROJECT TITLE:
NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR

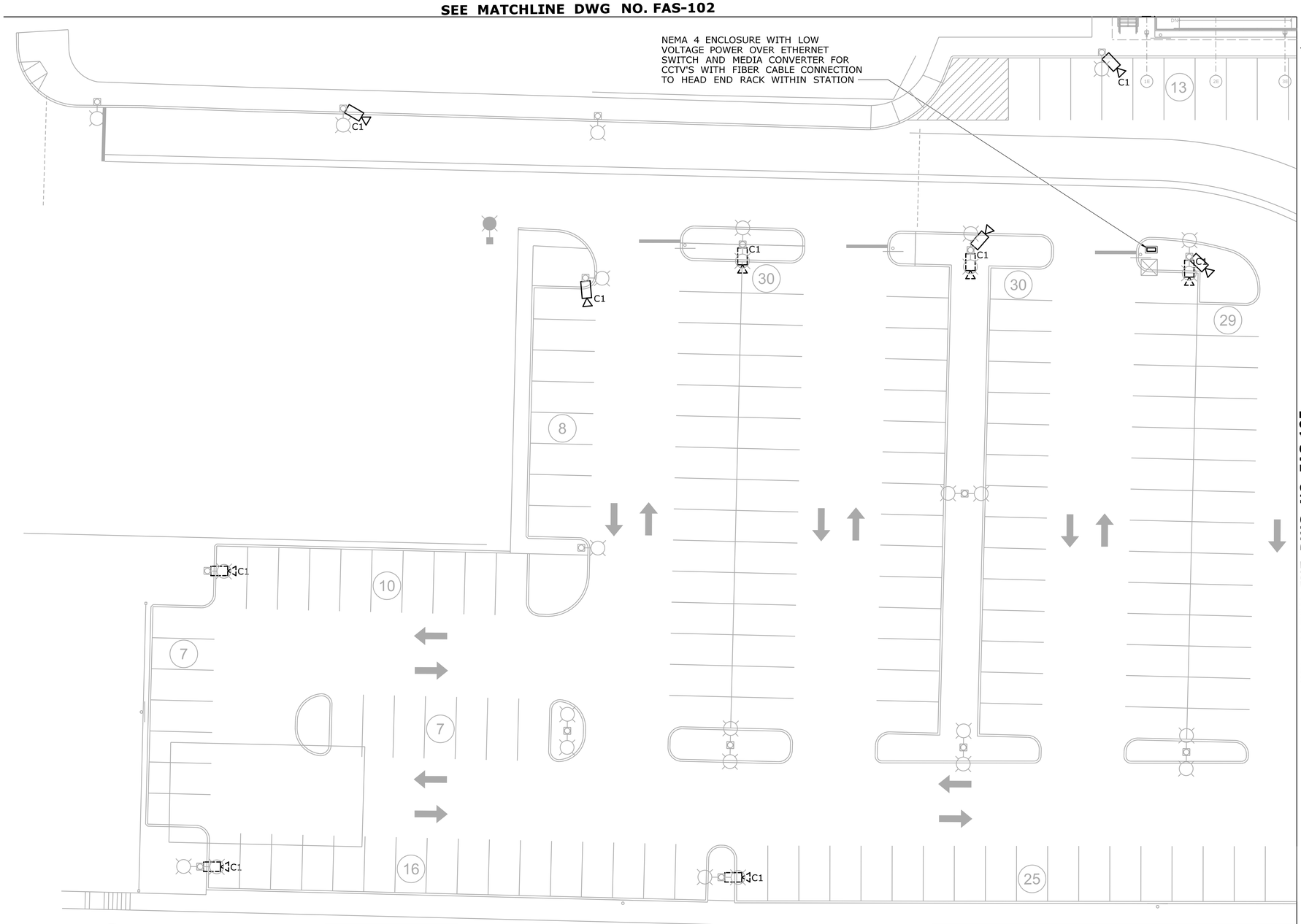
TOWN: BERLIN

DRAWING TITLE: SECURITY SYSTEMS PLAN - PART C

PROJECT NO. 170-3155
DRAWING NO. FAS-103
SHEET NO. 01.13.073

SEE MATCHLINE DWG NO. FAS-102

NEMA 4 ENCLOSURE WITH LOW VOLTAGE POWER OVER ETHERNET SWITCH AND MEDIA CONVERTER FOR CCTV'S WITH FIBER CABLE CONNECTION TO HEAD END RACK WITHIN STATION



SEE MATCHLINE DWG NO. FAS-105

NOTES:

1. REFER TO LEGEND SYMBOLS ON DWG. FAS-001.
2. REFER TO RISER DIAGRAMS ON DWGS. FAS-701/FAS-702.
3. CAMERAS SHOWN IN DASHED LINE STYLE ARE TO BE INSTALLED IN THE FUTURE AND ARE NOT WORK OF THIS CONTRACT. ALL CONDUIT, POWER AND COMMUNICATION CABLING FOR THESE CAMERAS IS WORK OF THIS CONTRACT AND IS TO BE INSTALLED NOW.

SECURITY SYSTEMS PARKING LOT PLAN - PART A

SCALE: 1/16" = 1'-0"

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: **W. CAREY**

CHECKED BY: **D. NEWMAN**

SCALE AS NOTED

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296_007_-_04_FAS_-_104.dgn

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Hatch Mott MacDonald
Suite 100, North Lobby
400 Blue Hill Drive
Westwood, MA 02090

PROJECT TITLE:
NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR

TOWN: **BERLIN**

DRAWING TITLE:
SECURITY SYSTEMS PARKING LOT PLAN

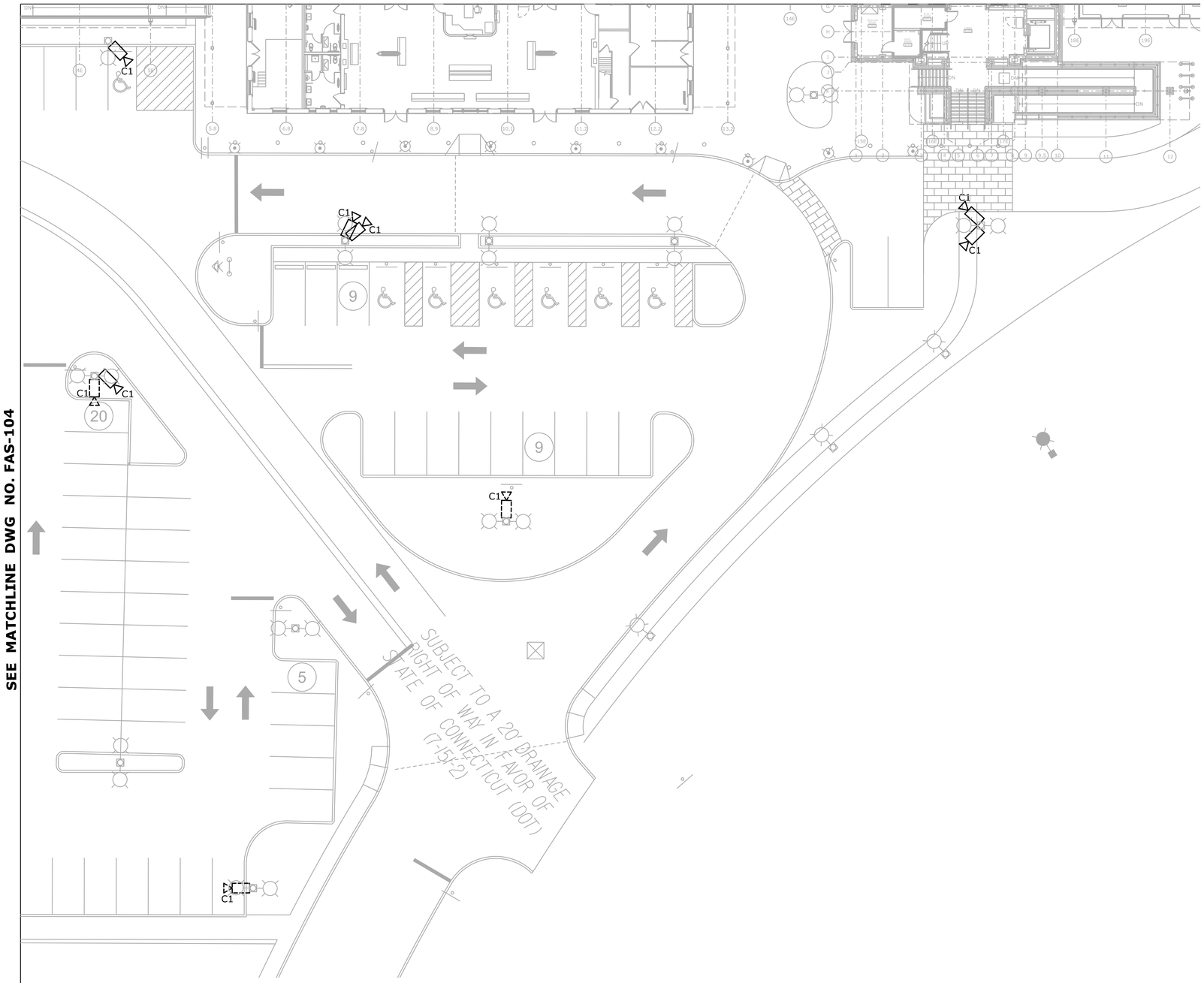
PROJECT NO. **170-3155**

DRAWING NO. **FAS-104**

SHEET NO. **01.13.074**

SEE MATCHLINE DWG NO. FAS-102

SEE MATCHLINE DWG NO. FAS-104



NOTES:

1. REFER TO LEGEND SYMBOLS ON DWG. FAS-001.
2. REFER TO RISER DIAGRAMS ON DWGS. FAS-701/FAS-702.
3. CAMERAS SHOWN IN DASHED LINE STYLE ARE TO INSTALLED IN THE FUTURE AND ARE NOT WORK OF THIS CONTRACT. ALL CONDUIT POWER AND COMMUNICATION CABLING FOR THESE CAMERAS IS WORK OF THIS CONTRACT.

SECURITY SYSTEMS PLAN - PART B

SCALE: 1/16" = 1'-0"

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: **W. CAREY**

CHECKED BY: **D. NEWMAN**

SCALE AS NOTED

STATE OF CONNECTICUT
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Filename: ...\FA_CGR_CPS_0170-2296_007_04_FAS_105.dgn

SIGNATURE/ BLOCK:

Hatch Mott MacDonald
Suite 100, North Lobby
400 Blue Hill Drive
Westwood, MA 02090

PROJECT TITLE:
NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR

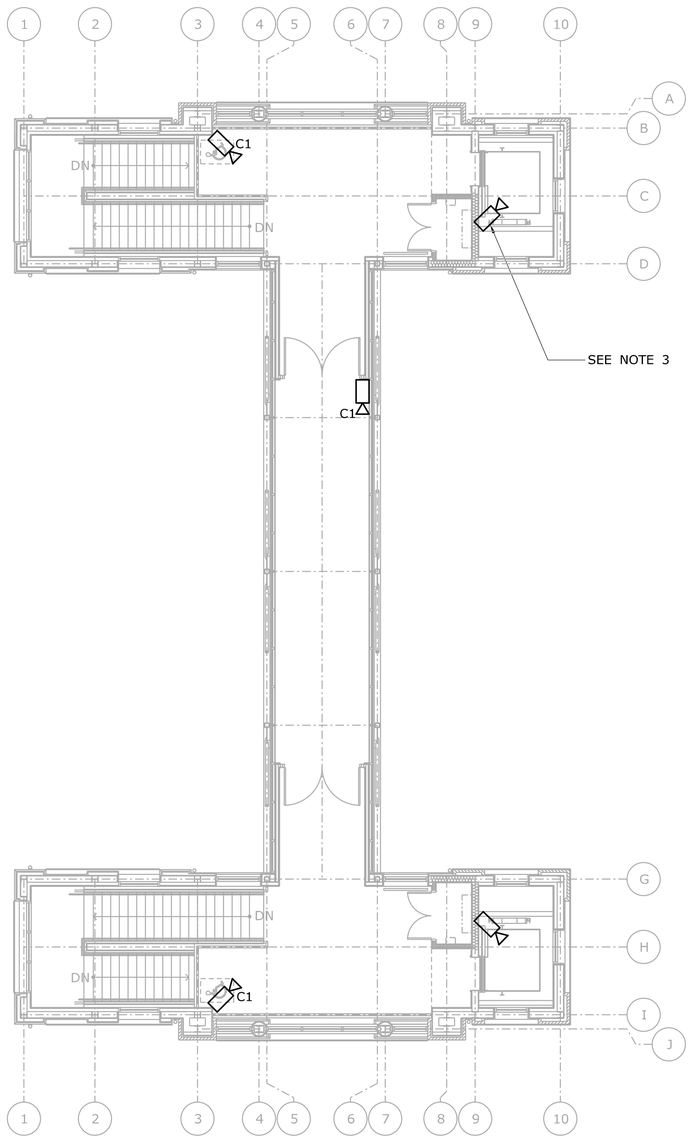
TOWN: **BERLIN**

DRAWING TITLE:
SECURITY SYSTEMS PLAN - PART A

PROJECT NO. **170-3155**

DRAWING NO. **FAS-105**

SHEET NO. **01.13.075**



NOTES:

1. REFER TO LEGEND SYMBOLS ON DWG. FAS-001.
2. REFER TO RISER DIAGRAMS ON DWGS. FAS-701/FAS-702.
3. CAMERAS SHOWN WITHIN ELEVATOR CAR WILL BE SUPPLIED WITH THE ELEVATOR VENDOR BUT CONNECTED TO THE VSS RACK BY CONTRACTOR OF THIS WORK.

PEDESTRIAN BRIDGE LEVEL

SCALE: 1/8" = 1'-0"

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: **W. CAREY**

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SCALE: 1/8" = 1'-0"

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296_007_04_FAS_106.dgn

SIGNATURE/ BLOCK:

Hatch Mott MacDonald
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Westwood, MA 02090

PROJECT TITLE:

NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR

TOWN: **BERLIN**

DRAWING TITLE: **SECURITY SYSTEMS PLAN PEDESTRIAN BRIDGE**

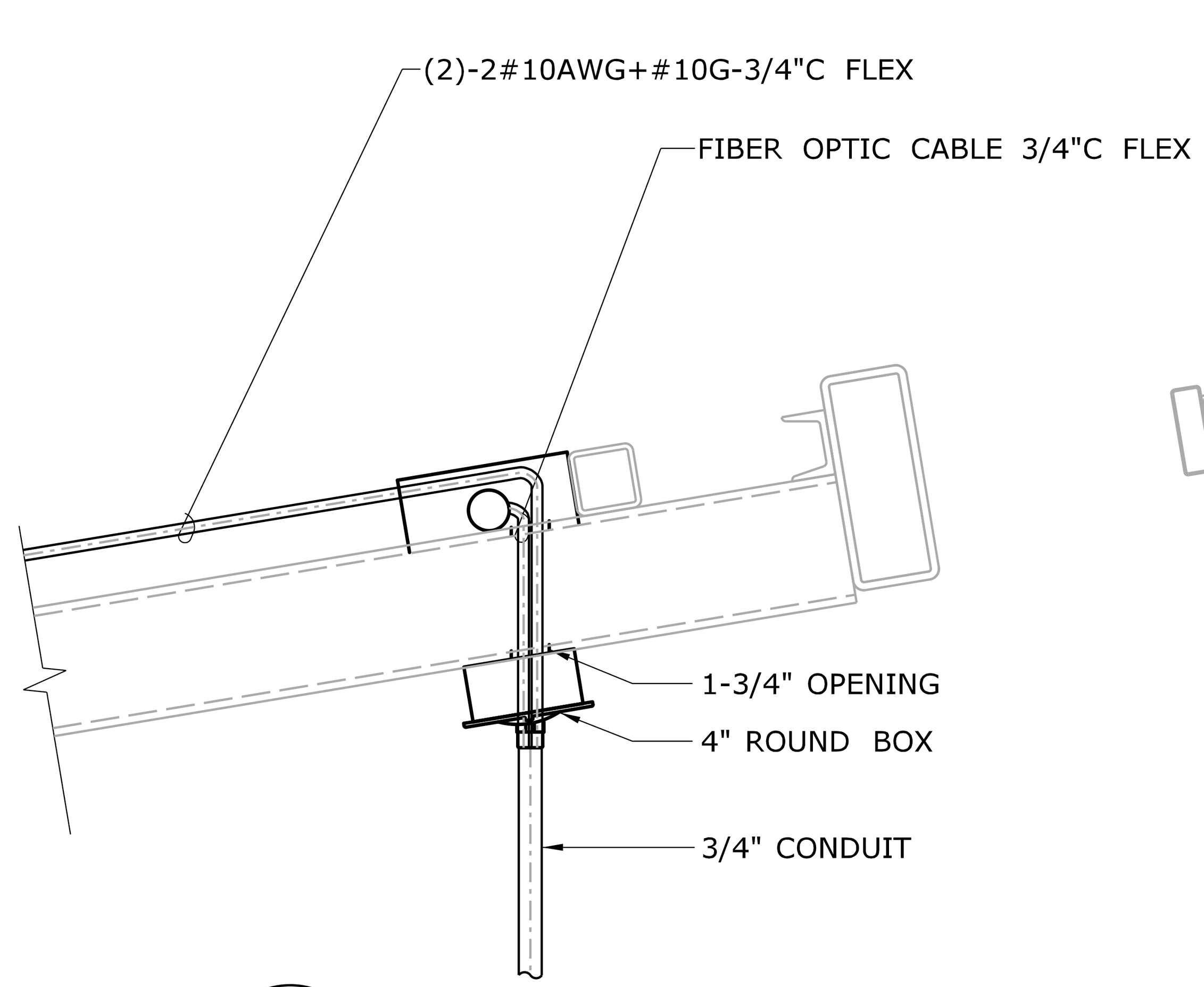
PROJECT NO. **170-3155**

DRAWING NO. **FAS-106**

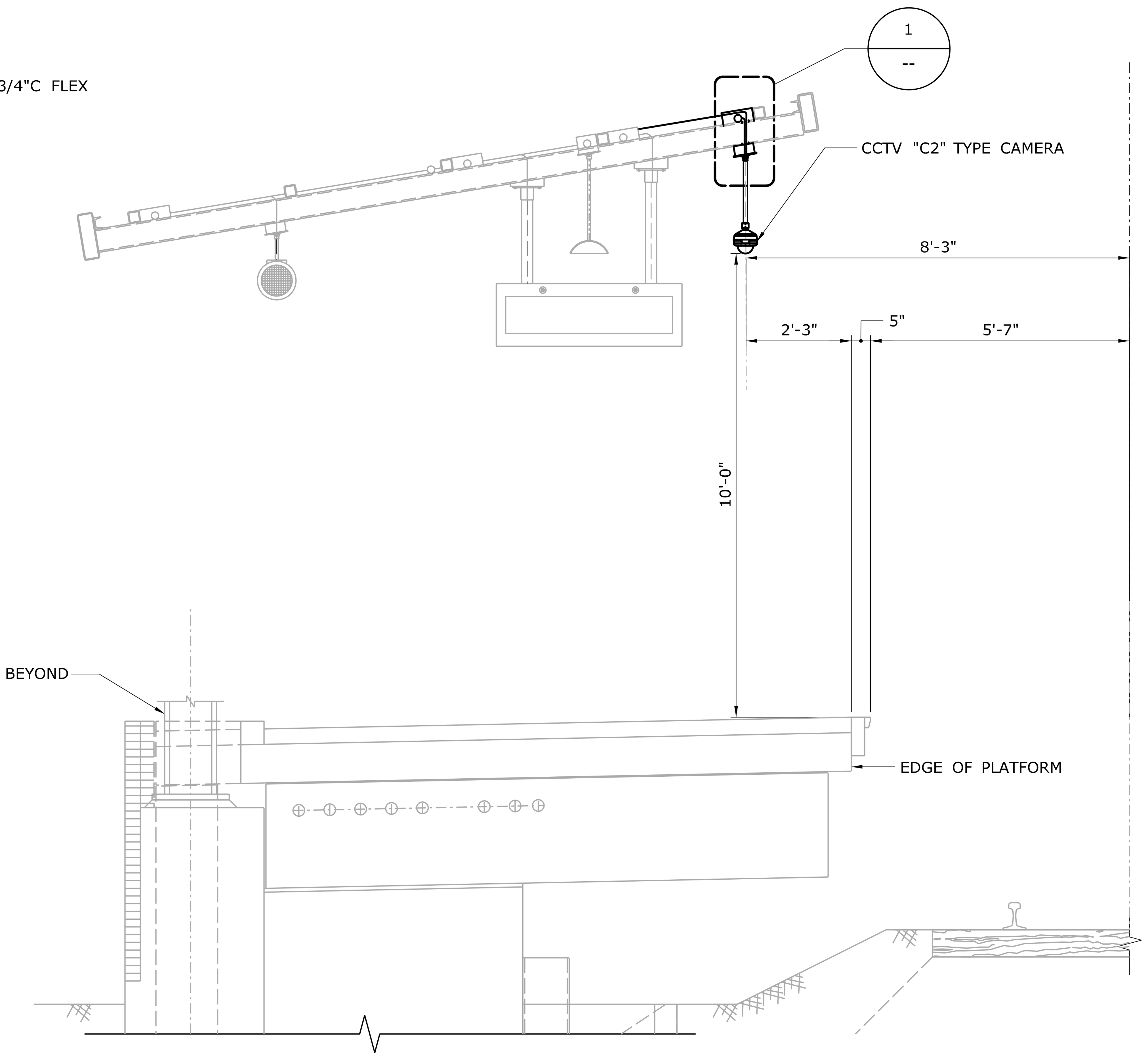
SHEET NO. **01.13.076**

NOTES:

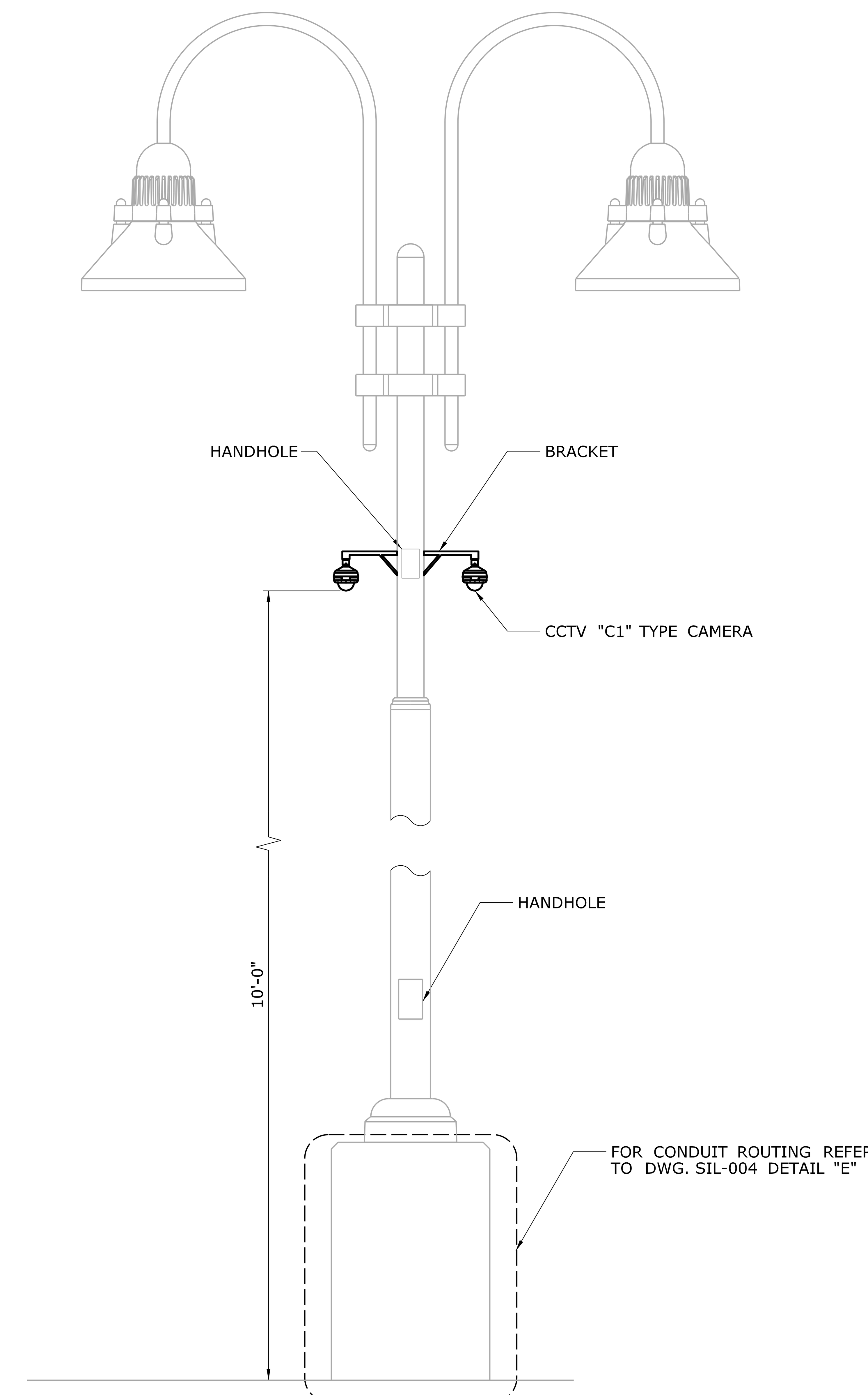
1. REFER TO LEGEND SYMBOLS ON DWG. FAS-001
2. SEE DWG. FEL-601 & 602 FOR TYPICAL CONDUIT DETAILS.
3. FIBER CABLE MUST RUN WITHIN CONDUIT ELBOWS WITH A MINIMUM BEND RADIUS THAT MEETS CABLE MANUFACTURER REQUIREMENTS.



1 / --
DETAIL 1
SCALE: 1-½" = 1'-0"



PENDANT MOUNTED CAMERA SECTION
SCALE: ½" = 1'-0"



POLE MOUNTED CAMERA DETAIL
SCALE: ½" = 1'-0"

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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SCALE AS NOTED

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Filename: ...\FA_CGR_CPS_0170-2296_007__04_FAS__601.dgn

SIGNATURE/ BLOCK:
Hatch Mott MacDonald
Suite 100, North Lobby
400 Blue Hill Drive
Westwood, MA 02090

PROJECT TITLE: **NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR**

TOWN: **BERLIN**

DRAWING TITLE: **SECURITY SYSTEMS DETAILS**

PROJECT NO. **170-3155**
DRAWING NO. **FAS-601**
SHEET NO. **01.13.077**

NOTES:

1. SEE DRAWING FAS-001 FOR LEGEND, NOTES AND SCHEDULE.

SECURITY SYSTEMS NETWORK DIAGRAM

NOT TO SCALE

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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NOT TO SCALE

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296_007__04_FAS__701.dgn

SIGNATURE/ BLOCK:

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Suite 100, North Lobby
400 Blue Hill Drive
Westwood, MA 02090

PROJECT TITLE: **NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR**

TOWN: **BERLIN**

DRAWING TITLE: **SECURITY SYSTEMS RISER DIAGRAM 1 OF 2**

PROJECT NO. **170-3155**

DRAWING NO. **FAS-701**

SHEET NO. **01.13.078**

NOTES:

1. SEE DRAWING FAS-001 FOR LEGEND, NOTES AND SCHEDULE.

SECURITY SYSTEMS NETWORK DIAGRAM

NOT TO SCALE

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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PROJECT TITLE: **NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR**

TOWN: **BERLIN**

DRAWING TITLE: **SECURITY SYSTEMS RISER DIAGRAM 2 OF 2**

PROJECT NO. **170-3155**

DRAWING NO. **FAS-702**

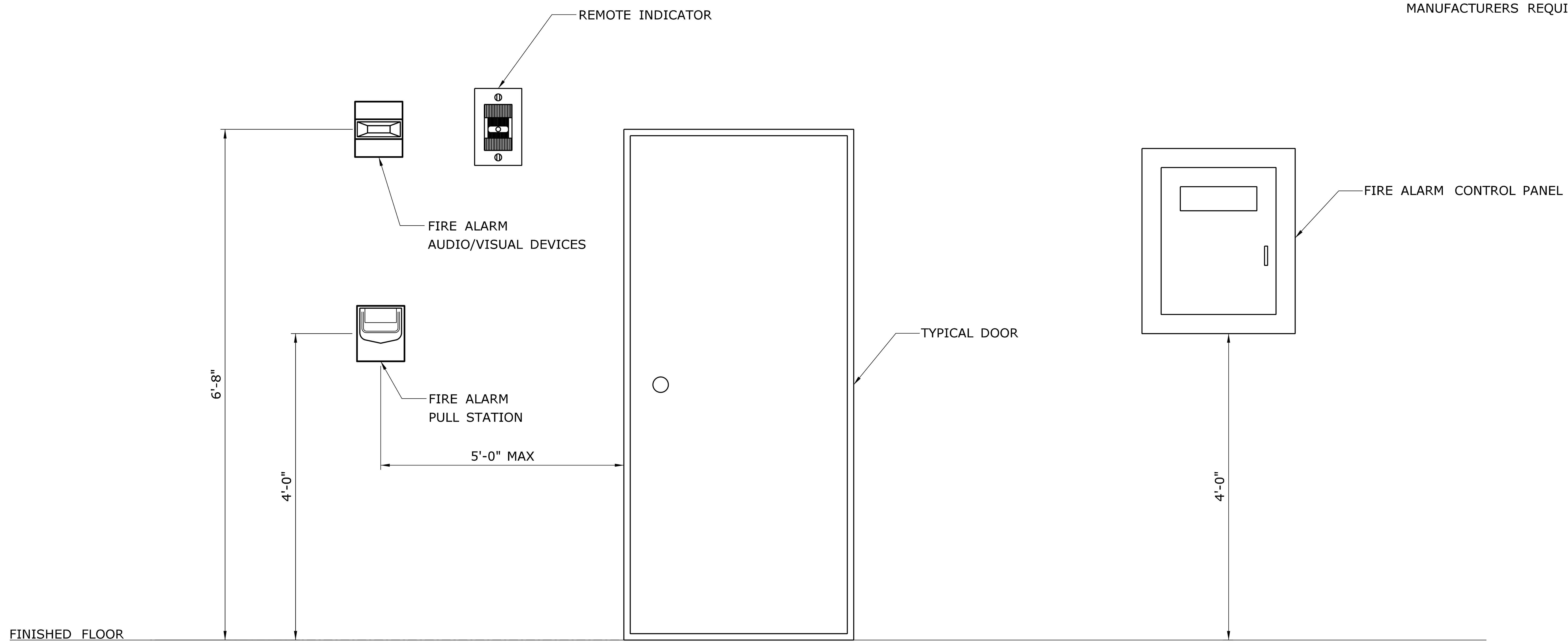
SHEET NO. **01.13.079**

FIRE ALARM

Symbol	Description
FACP	FIRE ALARM CONTROL PANEL
F	FIRE ALARM MANUAL PULL STATION
S	FIRE ALARM SMOKE DETECTOR
H	HEAT DETECTOR
SD	FIRE ALARM DUCT SMOKE DETECTOR
F	FIRE ALARM STROBE LIGHT WALL MOUNTED
F	FIRE ALARM SPEAKER/STROBE LIGHT COMBINATION WALL MOUNTED
H	HORN UNIT ONLY
R	FIRE ALARM RELAY
	END OF LINE RESISTOR (EOL)
R WP	REMOTE ALARM INDICATOR WITH TEST SWITCH (WEATHER-PROOF)
	DOOR HOLD OPEN

NOTES:

1. ALL WIRING SHALL BE PER FIRE ALARM MANUFACTURERS RECOMMENDATIONS.
2. ALL STROBES SHALL BE RATED AT 75 CANDELAS.
3. ALL MANUAL PULL STATIONS LOCATED IN PUBLIC AREAS SHALL HAVE A PLEXIGLASS COVER INSTALLED OVER IT.
4. FIRE ALARM MANUFACTURER SHALL PROVIDE ALL END OF LINE RESISTOR VALUES AND SHALL DESIGNATE THE LOCATION IN THE CIRCUIT.
5. FIRE ALARM RISER SHOWN FOR DIAGRAMMATIC PURPOSES ONLY. ACTUAL DEVICE QUANTITIES AND WIRING REQUIREMENTS SHALL BE PER CONTRACT DOCUMENTS AND FIRE ALARM MANUFACTURER.
6. PROVIDE RELAYS FOR ELEVATOR RECALL AND FIREMAN'S HAT OPERATION AND MOUNT NEXT TO EACH ELEVATOR CONTROLLER. PROVIDE WIRING FROM FACP TO EACH RELAY PER FIRE ALARM MANUFACTURERS REQUIREMENTS IN 3/4"C MINIMUM.



MOUNTING DETAILS

NOT TO SCALE

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: **W. CAREY**

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Filename: ...\FA_CGR_CPS_0170-2296_007__04_FFD__001.dgn

SIGNATURE/BLOCK:

Hatch Mott MacDonald
Suite 100, North Lobby
400 Blue Hill Drive
Westwood, MA 02090

PROJECT TITLE: **NEW HAVEN-HARTFORD SPRINGFIELD RAIL CORRIDOR**

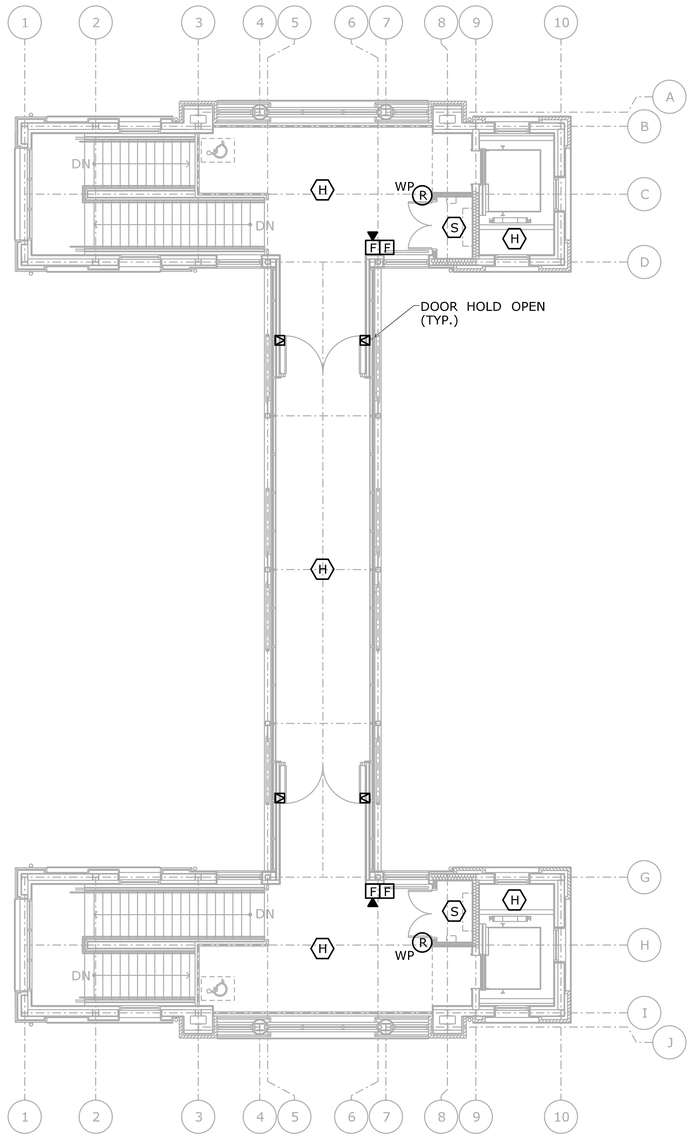
TOWN: **BERLIN**

DRAWING TITLE: **FIRE ALARM GEN. NOTES & LEGEND**

PROJECT NO. **170-3155**

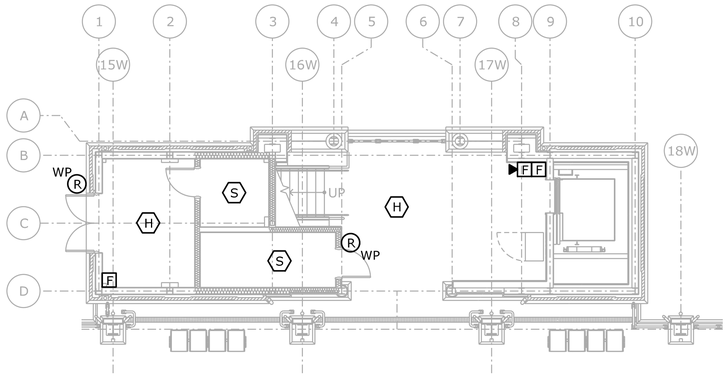
DRAWING NO. **FFD-001**

SHEET NO. **01.13.080**



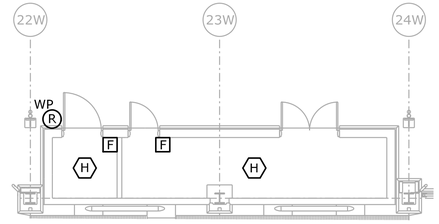
PEDESTRIAN BRIDGE LEVEL

SCALE: 1/8" = 1'-0"



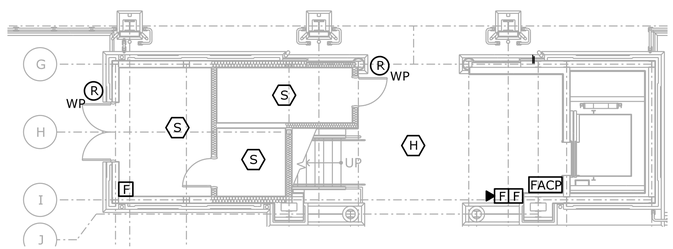
WEST TOWER GROUND LEVEL

SCALE: 1/8" = 1'-0"



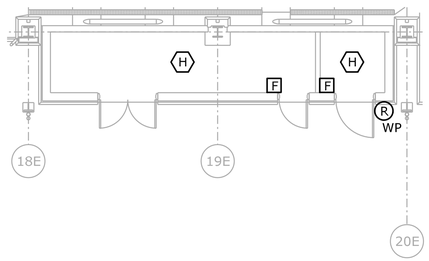
EQUIPMENT ROOM WEST PLATFORM

SCALE: 1/8" = 1'-0"



EAST TOWER GROUND LEVEL

SCALE: 1/8" = 1'-0"



EQUIPMENT ROOM EAST PLATFORM

SCALE: 1/8" = 1'-0"

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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: W. CAREY

CHECKED BY: D. NEWMAN

SCALE: 1/8" = 1'-0"

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296_007_04_FFD_101.dgn

SIGNATURE/ BLOCK:

Hatch Mott MacDonald
Suite 100, North Lobby
400 Blue Hill Drive
Westwood, MA 02090

PROJECT TITLE:

NEW HAVEN - HARTFORD
SPRINGFIELD
RAIL CORRIDOR

TOWN: BERLIN

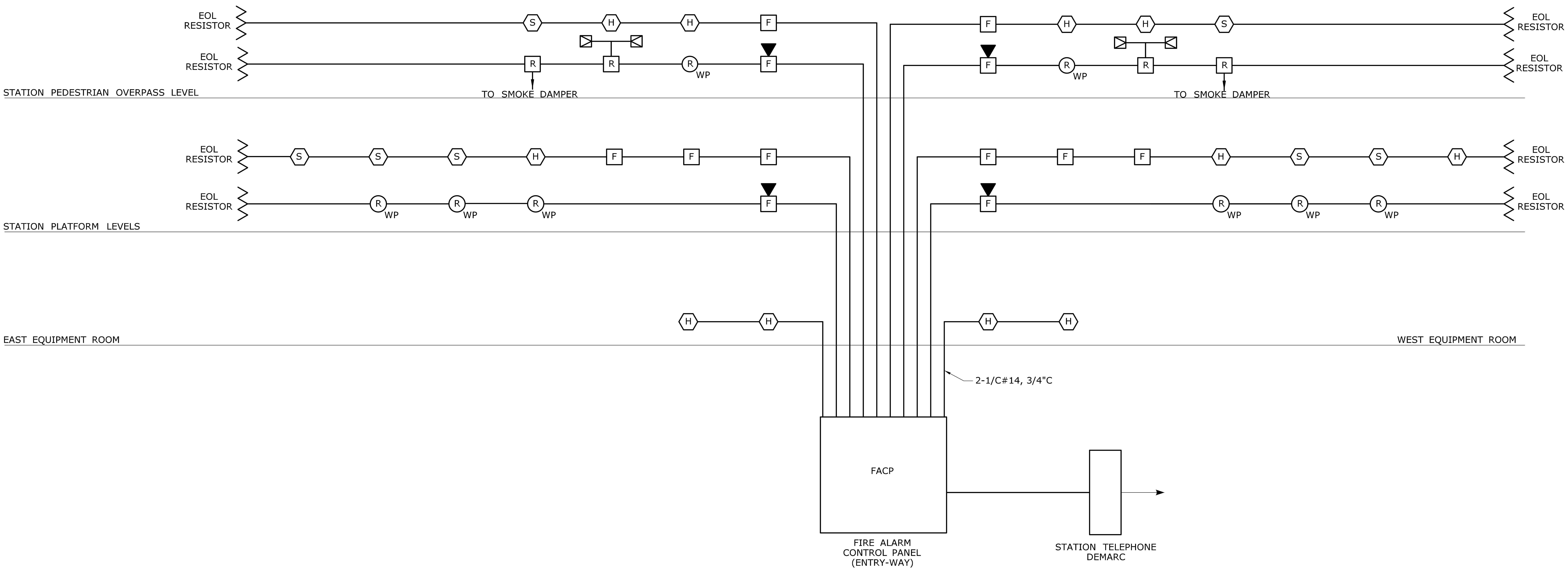
DRAWING TITLE:

FIRE ALARM PLAN
BRIDGE & GND. LEVELS

PROJECT NO. 170-3155

DRAWING NO. FFD-101

SHEET NO. 01.13.081



FIRE ALARM RISER DIAGRAM

NOT TO SCALE

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: **W. CAREY**

CHECKED BY: **D. NEWMAN**

NOT TO SCALE

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296_007__04_FFD__701.dgn

SIGNATURE/ BLOCK:

Hatch Mott MacDonald
Suite 100, North Lobby
400 Blue Hill Drive
Westwood, MA 02090

PROJECT TITLE: **NEW HAVEN-HARTFORD SPRINGFIELD RAIL CORRIDOR**

TOWN: **BERLIN**

DRAWING TITLE: **FIRE ALARM RISER DIAGRAM**

PROJECT NO. **170-3155**

DRAWING NO. **FFD-701**

SHEET NO. **01.13.082**

LEGEND:

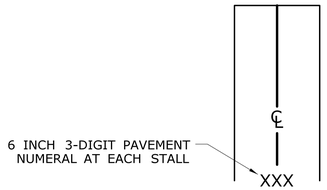
SIGN TEXT

X / X — LOCATION #

TEXT # (SEE RCS-002)

TOTAL PARKING SPACES

218

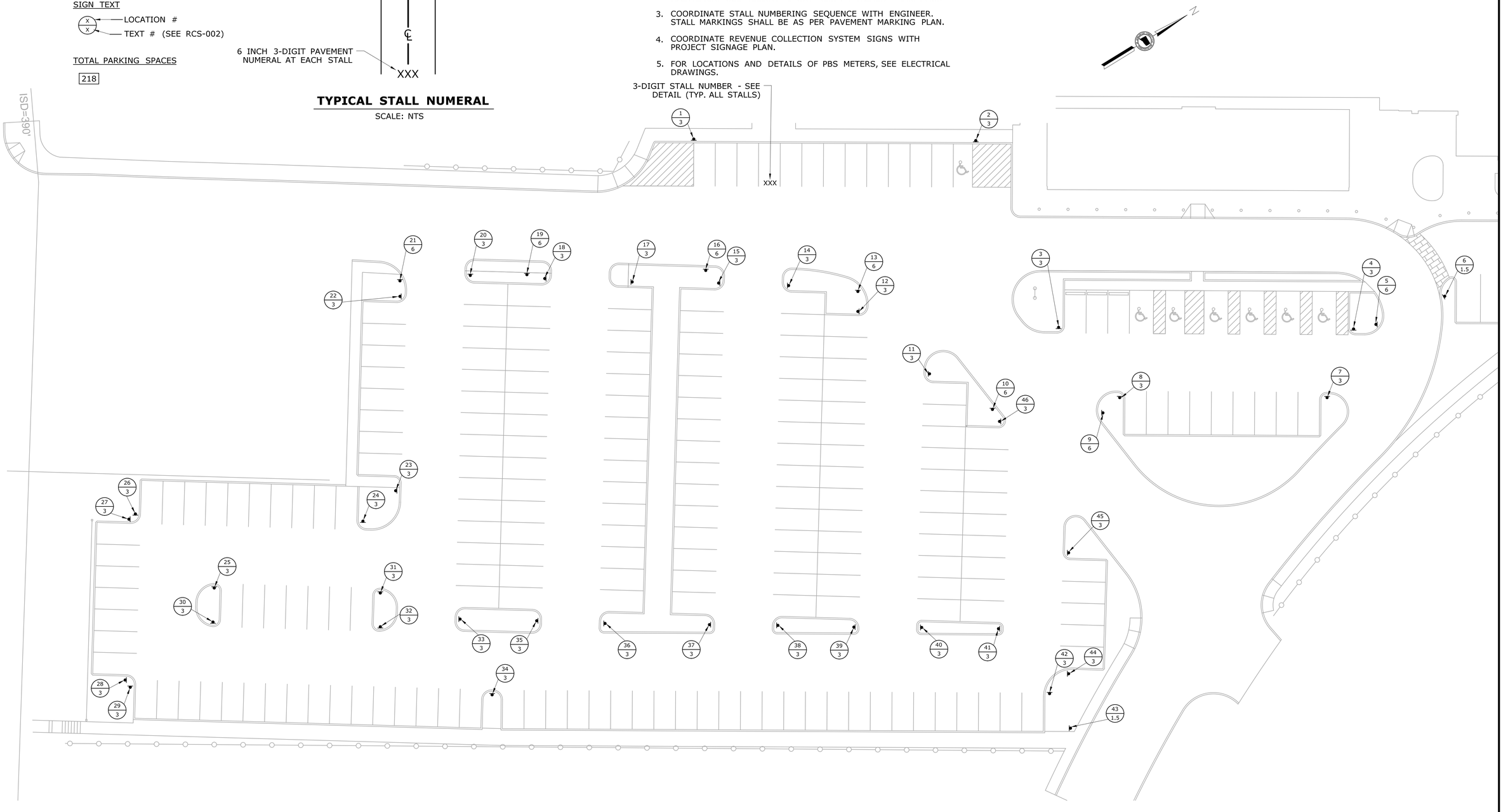


TYPICAL STALL NUMERAL

SCALE: NTS

GENERAL NOTES:

1. FOR SIGN TEXT SEE RCS-002.
2. NUMBER EACH SURFACE STALL WITH UNIQUE 3-DIGIT IDENTIFIER. USE YELLOW EPOXY RESIN PAVEMENT MARKINGS.
3. COORDINATE STALL NUMBERING SEQUENCE WITH ENGINEER. STALL MARKINGS SHALL BE AS PER PAVEMENT MARKING PLAN.
4. COORDINATE REVENUE COLLECTION SYSTEM SIGNS WITH PROJECT SIGNAGE PLAN.
5. FOR LOCATIONS AND DETAILS OF PBS METERS, SEE ELECTRICAL DRAWINGS.



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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: D. PEKAROVIC

CHECKED BY: A. SARDILLI

SCALE IN FEET 0 20 40

SCALE 1"=20'

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA..CGR..CPS..0170-2296..007_..04..RCS 001.dgn

SIGNATURE/ BLOCK:

Baker

Michael Baker Engineering Inc.
500 Enterprise Drive
Suite 2B
Rocky Hill, CT 06067

PROJECT TITLE:

NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR

TOWN: **BERLIN**

DRAWING TITLE: **REVENUE COLLECTION SYSTEM GENERAL SITE PLAN**

PROJECT NO. **170-3155**

DRAWING NO. **RCS-001**

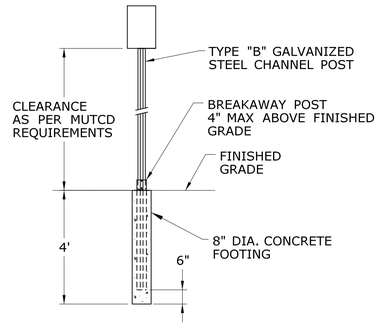
SHEET NO. **01.13.083**

RCS - SIGN TEXT DATA (SEE RCS - 1)

TEXT NO.	LOCATIONS	TEXT (REF MTA MNR STATION DESIGN GUIDELINES, 2007)	SIZE H x W	COLOR	
				BACK	CHAR
1	6, 43	METERED PARKING ALL SPACES / REMEMBER YOUR SPACE NUMBER — POST MOUNTED	2' x 3'	WHITE/ BLACK	BLACK/ WHITE
2	34	METER PARKING ONLY / ### - ### / ### - ### / PAY AT PAY STATION — POST MOUNTED	1' x 18"	RED/ WHITE/ RED	WHITE/ RED/ WHITE
3	1, 2, 3, 4, 7, 8, 11, 12, 14, 15, 17, 18, 20, 22, 23,24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 35, 36, 37, 38, 39,40, 41, 42, 44, 45	METER PARKING ONLY / ### - ### / PAY AT PAY STATION — POST MOUNTED	1' x 18"	RED/ WHITE/ RED	WHITE/ RED/ WHITE
5	6, 43	PARKING PAY STATION — POST MOUNTED	2' x 2'	WHITE	BLACK
6	5, 9, 10, 13, 16, 19, 21	PERMIT PARKING ONLY MON-FRI 5am - 10am / METERED OR PERMIT PARKING ALL OTHERTIMES — POST MOUNTED	3' x 4'	SEE TEXT	SEE TEXT

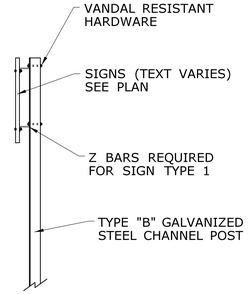
GENERAL NOTES:

1. ALL CONDUIT BENDS IN ACCORDANCE WITH NEC.
2. PLUG AND CAP CONDUIT UNTIL PBS EQUIPMENT IS INSTALLED. CAPPED CONDUIT SHALL BE FLUSH WITH ADJACENT SIDEWALK TO PREVENT TRIPPING HAZARD.
3. MAINTAIN 18" MINIMUM CLEARANCE BETWEEN PBS REAR PANEL AND SOLID OBJECT / SURFACE.
4. PROVIDE SLEEVE IN SLAB FOR PBS ENCLOSURE POWER CONNECTION. COORDINATE WITH MANUFACTURER'S REQUIREMENTS.
5. FOR SIGN TEXT #2 & #3, APPLY ARROW HEADS AND STALL NUMBERS IN THE FIELD (SEE RCS-001).
6. MAINTAIN 3' CLEARANCE BETWEEN MULTIPLE PBS METERS.



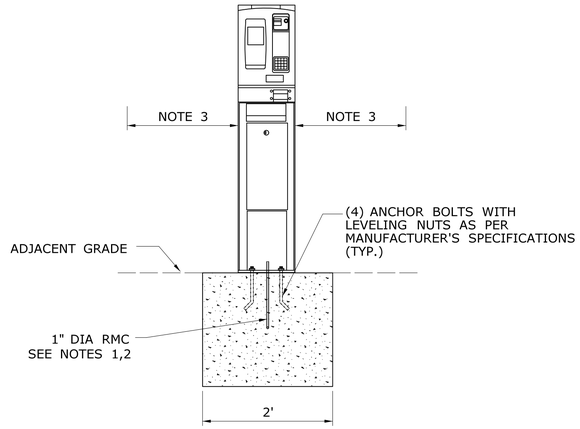
SIGN POST MOUNTING DETAIL

SCALE: N.T.S.



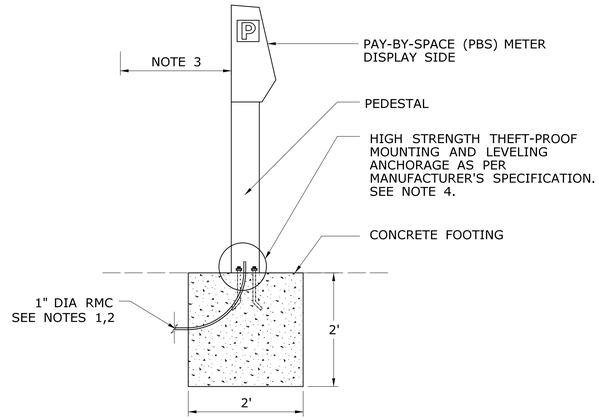
SIGN POST MOUNTING DETAIL

SCALE: N.T.S.



PBS ON GRADE FOUNDATION FRONT VIEW

SCALE: N.T.S.



PBS ON GRADE FOUNDATION SIDE VIEW

SCALE: N.T.S.

NOTE: TOP OF FOOTING WILL MATCH ADJACENT GRADE

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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Plotted Date: 2/26/2014

DESIGNER/DRAFTER: D. PEKAROVIC
CHECKED BY: A.SARDILLI
NOT TO SCALE

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FA_CGR_CPS_0170-2296_007_-_04_RCS_002.dgn

SIGNATURE/ BLOCK:
Baker
Michael Baker Engineering Inc.
500 Enterprise Drive
Suite 2B
Rocky Hill, CT 06067

PROJECT TITLE:
NEW HAVEN - HARTFORD SPRINGFIELD RAIL CORRIDOR

TOWN: **BERLIN**

DRAWING TITLE:
REVENUE COLLECTION SYSTEM MISCELLANEOUS DETAILS

PROJECT NO. **170-3155**
DRAWING NO. **RCS-002**
SHEET NO. **01.13.084**